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ABSTRACT

A series of sequentially replicated case studies examined the use of information technologies in the context of existing adult literacy programs. Literacy programs offered by the following institutions were studied: Watts Adult Learning Center (Los Angeles, California); Creative Academic Achievement Pro-Success Learning Center (McAllen, Texas); Correctional Education Division, Los Angeles County Jail; Baltimore Reads, Inc. (Baltimore, Maryland); Center for Training and Economic Development Cleveland, Ohio; and United Auto Workers--Ford National Education, Development, and Training program with headquarters in Dearborn, Michigan. Administrators, technical specialists, teachers, and adult learners involved in each program were interviewed to gain information about the features of the technologies used, the contexts in which they are introduced, and factors in integrating new technologies into existing program settings. On the positive side, the interviews established that technology can indeed be effective in adult literacy programs, people enjoy working with technology, and information tools enhance program flexibility. On the negative side, the interviews confirmed that technology can be intimidating, the tools of information technology require learner investment and new skills on the part of teachers, overreliance on information technology is possible, and networking of people and machines is too limited. (Appended are the study interview guides and a list of contact individuals. Contains 26 references. (MN)

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CASE STUDIES OF TECHNOLOGY USE IN ADULT LITERACY PROGRAMS

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Adult Literacy and New Technologies: Tools for a Lifetime

June 1992

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INTRODUCTION

WHY THIS STUDY?

With increasing recognition that vast numbers of Americans -- disproportionately poor, recent immigrants, and minority groups -- cannot function effectively as parents, citizens, or workers because of problems manipulating words and numbers, illiteracy among adults has taken its place on the national agenda. Adult illiteracy is probably linked with major social and economic problems such as crime, drug abuse, unemployment, international noncompetitiveness, and the inability of American children to achieve their full human potential. With this recognition has come an expanded search for solutions to the adult illiteracy problem, including higher funding levels, altered administrative structures, and improved instructional approaches.

The fact that "adult illiteracy" is a catch-all phrase, currently applied to a wide range of reading related skills and issues, exacerbates the problem of providing effective help to those who need it. The term "illiterate", originally applied to the ability to sign marriage licenses and respond to census surveys in 1840, has sequentially been understood to refer to more complex interactions with one's information environment. In the recent National Assessment of Education Progress (NAEP) study, literacy involved a person's ability to "recognize, acquire, organize, interpret and apply information which involves the use of various types of printed materials" (NAEP, 1986:I-12).

For the purposes of this proposal, literacy is understood in functional terms. That is, literacy is a measure of a person's ability to function effectively with words and numbers on the job, as a citizen, as a parent, etc. This contextualizes the application of reading, writing, interpreting, and speaking skills; they are not distinct faculties that can be learned and measured outside of particular situations. This is the notion of literacy that underlies most current estimates of the scope of the illiteracy problem and many of the programs that have been developed to address it (Solorzano et al., 1989).

The NAEP study describes how media campaigns have been used both to bring the problem to the nation's attention and to recruit adult learners and volunteers to participate in instructional programs. The report also mentions the partnerships which exist between the public and private sector to pool limited resources, develop new programs and expand existing ones. Despite these efforts and the heightened awareness for the enormity of the problem, the report estimates that of the 20 to 60 million illiterate or marginally literate adults, currently only about 3 to 4 million adults receive some form of instructional services.

Fortunately, a broad, eclectic effort has been undertaken to meet the needs of individuals whose illiteracy limits their participation in our society. This effort includes a

diverse range of activities from individual volunteer tutors to large-scale federally-sponsored research efforts. Instructional and services are being provided by a wide range of groups, including churches and civic organizations, employers, labor unions, community-based organizations, libraries, adult schools, and community colleges. There also are many different approaches to teaching literacy skills, including programs that focus on basic reading and writing skills, family-based literacy programs, workplace literacy programs, programs that focus on daily living skills, and programs that tackle literacy as an element of job training. The literacy service delivery system is both broad and heterogeneous. However, there is a more or less constant sense that more can and should be done.

As in many other areas of contemporary frustration, we tend to look to solutions through improving the underlying technology. Ever since NASA's triumphs of the 1960's, the cry has been again and again, "If we can send a man to the moon, why can't we..." Accordingly, there is considerable interest in almost all quarters in the use of better technology in literacy instruction. Many literacy programs are experimenting with computers, videodiscs and other technological applications. In fact, a national network of researchers and practitioners (sponsored by the Adult Literacy and Technology Project) was established to promote greater technology use in literacy instruction (Meenan, 1988). New instructional software and systems aimed at improving literacy among adults are being developed by many publishers (Apple, 1988),and the number of literacy programs that are experimenting with or actively using information technology in instruction is growing rapidly (Crandall, et al., 1984). Furthermore, computers also are finding a role in program administration (Solorzano, 1988).

This report examines the use of such information technologies as computers and communication media (e.g., video, telephone, and computer networking), software, and educational programming in the context of current adult literacy programs. As a series of case studies, it makes no pretense to providing a complete or comprehensive picture to technology use in this context. We believe that it does, however, illustrate some major themes in technology applications to literacy, and leads to a number of useful conclusions and suggestions for such technology deployment.

Our Introduction to the Report outlines first some of the generic issues in technology use that must be taken into consideration. We then describe how we went about the study, and provide an overview of the sites we visited together with some of the concepts that we believe each illustrates. The six cases are followed by our summary comments and some recommendations that derive from the case data.

Generic Issues

The term "information technology" is used to describe many different types of mechanical and electronic systems. While these systems share many characteristics, they differ in important ways. It may be helpful to distinguish between minicomputer networks, micro-computers, interactive videodiscs, instructional television and videotapes, and satellite broadcast systems when examining the use of technology in literacy programs. Although the use of these technologies is relatively new, there is research that begins to identify the strengths and weaknesses of these systems in various contexts.

There is certainly no gainsaying the vast contributions that technical advances have made toward improving quality of life and mediating a wide range of social and behavioral problems. But in literacy as in all other application areas, the problem is that technical solutions are very seldom self-implementing. Rather, they must be put into place and operated through administrative and managerial structures that may or may not be appropriate and effective. Technologies are no more useful than the socio-technical systems within which they are embedded will allow them to be (Tornatzky and Fleischer, 1990).

What makes a technology work is clearly dependent on particular features of the software and hardware; however, it is also dependent as well on its operative context. At a generic level, some features of tools have consistently emerged in research literature as predictors of successful outcomes in use (e.g., Bikson, Gutek and Mankin, 1987; Rogers, 1983):

- **Adequacy**: having enough tools available so that those who need them -- users as well as those who support or instruct them -- can have timely access.

- **Functionality**: how well suited the technology is for the set of learning processes that it is intended to enhance.

- **Interaction support**: the degree to which the interface makes these functions readily usable.

- **Modifiability, extendibility**: whether the tools can be locally modified or adapted (e.g., to better fit with learners' needs or context constraints) and whether they can be upgraded or extended in response to new technology opportunities.

Similarly, a number of institutional characteristics are likely to influence the successful introduction of new technologies for education and training. The following parameters

have been associated with promising results often enough to merit attention:

- **Resources**: the availability of slack financial resources is probably a necessary but not sufficient condition for successful implementation of new technology (Tornatzky et al., 1983; Rogers, 1983).

- **Structure**: formal organizational structures are usually found to be less influential than informal roles (e.g., gatekeepers, change agents, technology champions) that emerge in the innovation process (Tornatzky and Fleischer, 1990; Berman and McLaughlin, 1978).

- **Goal commitment**: the importance of the outcomes to the setting and its participants has been consistently linked to successful innovation efforts (Bikson, Stasz and Mankin, 1985; Berman and McLaughlin, 1978).

- **Change orientation**: the prevailing belief that changes can be accomplished effectively and that the results will benefit everyone in the setting (e.g., students and teachers as well as administrators) has been a significant predictor of successful implementation (Bikson, Gutek and Mankin, 1987); this finding is coherent with the popular view that organizational culture is at the heart of innovation (e.g., Peters and Waterman, 1982).

While it is clear that there are many exciting and possibly promising applications of information technologies to the improvement of literacy skills, it is also clear that most of our knowledge of these applications is anecdotal at best. There remains much to learn about how technology relates to the particular context of literacy programs.

Do Better Tools Really Help Teach Literacy?

While much experimentation with technology and adult literacy instruction is taking place, little systematic research has been conducted on the real progress made. What little has been done, however, suggests that many types of technology can be used effectively to increase the literacy of adults (e.g. Caldwell and Rizza, 1979). Some research suggests that adults may be willing to use computers or other forms of technology as an alternative learning method (e.g. Lane et al. 1984). The potential role for technology in literacy education provides a compelling reason to look at what technologies are working and why that may be. Although instructional learning systems have been found to be effective (Caldwell and Rizza, 1979), their initial expense is prohibitive for many small literacy programs (Turner, 1988).

There are several persuasive reasons to believe that the use of information technology might help to improve the effectiveness of adult literacy education and benefit adult learners. In the first place, information technology may be able to reduce the need for human instructors in some learning tasks, thus enabling existing programs to serve larger numbers of clients. Second, technology has the potential to reduce time and

distance constraints, thus possibly increasing the accessibility of adult literacy instruction to clients who are currently unable to attend programs at particular times and places. Third, information technology is potentially very flexible and thus may be better able than conventional instructional approaches to provide instruction that is individualized, open-entry/open-exit, or accommodating of physical handicaps and learning disabilities. Fourth, the availability of computer-supported instruction may attract clients to literacy programs, thus reducing recruitment problems. Fifth, the newer, ease-to-use graphical computer interfaces are widely believed to have great motivating potential, thus possibly increasing client retention and performance. Sixth, adult learners who participate in computer-assisted literacy instruction may acquire marketable job skills as a by-product of participation. Seventh, information technology can alleviate the administrative burdens of attendance recording and client tracking, thus reducing the amount of instructor time spent in non-instructional activities. And lastly, information technology can support the sharing of information about problems and solutions among instructors and administrators, thus enhancing the national pool of adult literacy educational expertise.

On the other hand, there are equally plausible reasons for the expectation that information technology may have little effect -- or even negative effect -- on adult learners or the performance of adult literacy programs. First, some clients may be intimidated, rather than motivated, by computer- or telecommunications- mediated instruction. Second, currently-available educational software and support materials may not meet the needs of some or all adult learners; despite technology's theoretical potential, commercially-available software may lack flexibility and easy customizability by instructors or adult learners themselves. Third, administrators or instructors may not accept information technology as an instructional tool, or they may lack the knowledge and skills needed to deploy technology appropriately; inappropriate uses of such technology may actually decrease instructional effectiveness rather than increase it. Fourth, over-reliance on information technology in adult literacy programs may de-skill adult literacy instructors or reduce their motivation. Fifth, effective use of information technology in adult literacy programs may require scarce or expensive technological specialists for such tasks as configuring systems and networks, evaluating and selecting equipment, software, or courseware, diagnosing problems, developing courseware, etc. Sixth, funding problems and resource constraints in adult literacy programs may result in "portfolios" of diverse technologies that are inadequate, incomplete, incompatible, obsolete, difficult to use, expensive to maintain, non-integratable, non-upgradeable, or otherwise incapable of supporting educational objectives. Finally, and perhaps most importantly, it may be that what prevents adult learners from making progress toward literacy is a complex of problems (e.g., illness, malnourishment, or lack of transportation or child care) that are simply not amenable to improved instructional approaches, whether or not these involve the use of information technology.

Because it has so much potential to benefit adult learners and the programs that instruct them, and because there are so many threats to the realization of these

benefits, it is essential to examine the ways in which information technology is currently being used in adult literacy programs, the effects of information technology use on program effectiveness and learner outcomes, and what can be learned from this experience for national policy-making.

What We Know Going In

A broad range of "information technologies" have been applied to adult literacy education. One of earliest to emerge was instructional film, and more recently videotape. Such media can be used by learners working independently with or without workbooks, or can be used by instructors in a traditional classroom setting as a basis for class discussion. With the advent of inexpensive but powerful microcomputers, much interactive computer software has been developed to support literacy education. Some of this has been bundled with hardware into what are known as "integrated learning systems" (ILSs). In other cases, software has been designed for use on general-purpose computers, in what is known as an "open-architecture" arrangement.

Many microcomputers used in adult literacy education operate in a "standalone" mode; that is, there are no electronic connections among various similar devices, and their users cannot "communicate" with each other. However, over the last decade or so, there has been a major trend in the direction of "connectivity" -- linking microcomputers via such technologies as dial-up telephone lines and local area networks. These approaches complement and extend other means of "distance learning" such as broadcast television and telephone-- distribution systems. Another recent trend is toward "multi-media" systems, such as interactive videodisk and computer-based courseware that employs voice recording and playback or speech synthesis.

Clearly, the potential effects of information technology on adult learners and adult literacy programs must depend, at least to some degree, on the nature of the information technology used. ILSs are more self-contained than open-architecture systems, permitting them to be used in adult literacy programs where there is little expertise about information technology. However, they are also frequently less flexible than open-architecture systems, so that instructors and adult learners have more difficulty adapting them to unique local needs.

Another important factor influencing the effects of information technology on adult learners and literacy programs is the way in which the technology is understood and used within any particular context. For instance, the same ILS could be deployed in one program as a discretionary "independent study" machine (perhaps while students are "between" classes) and in another program as an integral part of a particular curriculum of study (e.g., GED preparation).

In many cases, what enables a particular way of using an information technology is what we may call the "technology infrastructure" -- the set of enabling technologies, skills, policies, and support arrangements that lie "behind the terminal." The

open-architecture approach is likely to be more successful in a program where there are full-time specialists to review educational courseware packages and to prepare simplified and standardized instructions for instructors on when and how to use each package in the curriculum than in a program where the evaluation and selection of courseware is left entirely to the initiative of individual instructors. In short, systematic evaluation of the effects of information technology on adult learners and literacy programs requires detailed assessments of the technologies in use, the ways in which they are used, and the supportive and enabling infrastructures behind the technology used.

But a meaningful assessment of information technology effects cannot stop even at this larger definition of "information technology." Technology must also take into account the context in which information technology is used. Perhaps the most obvious aspect of context is the "users" of information technology. In adult literacy programs, four kinds of users can be identified. First, there are the adult learners themselves. Hardly a monolithic group, the clients of American adult literacy programs include: jail inmates who may be attending to kill time, to impress their parole boards, or to fulfill court orders, in addition to improving their minds; young welfare mothers, who may enroll to receive ADC or to be able to read to their children; elderly black men who wish to learn to read the Bible; Latino immigrants who wish to learn English in order to get a job; and assembly line workers who are embarrassed that they have to take job materials home for their family members to read to them. Each of these groups has unique learning needs and problems (such as lack of social support, lack of money for food, transportation, or child care, and various physical, mental or emotional handicaps) that may hinder their progress in literacy programs. These needs and problems must be taken into account in assessing information technology effects.

Second, there are the instructors. Instructors also differ -- in their motivation, their knowledge of information technology, and their willingness to use it as an instructional tool. Third, there are instructional and technological support staff who evaluate, select, and install equipment, software, and courseware, who train instructors or clients in how to use technology, who develop or make arrangements for custom courseware development, and who assist in troubleshooting, maintenance, and repair work. Finally, administrators are also information technology users in their roles as champions (or as negative opinion-leaders), as recipients of technology-generated management reports, and as makers of technology-related policy decisions. Each group of users has a unique perspective on information technology effects and effectiveness, all of which must be taken into account in a comprehensive assessment.

In addition to the users, another important aspect of the context of technology use involves the larger geographic, social, and political environment in which the adult literacy program operates. American literacy programs exhibit amazing diversity in funding arrangements and administrative auspices. Among the providers of adult literacy education are churches and civic organizations, employers, correctional institutions, labor unions, community-based organizations, libraries, adult schools, and

community colleges.

Not surprisingly, there also are many different approaches to teaching literacy skills, including programs that focus on basic reading and writing skills, family- based literacy programs, workplace literacy programs, programs that focus on daily living skills, and programs that tackle literacy as an element of job training. Some programs are small, single-site centers; others run large networks of coordinated service providers. Some operate in remote rural areas where no alternative providers exist; others operate in large metropolitan areas where there may be some degree of choice. Each of these factors can make a difference in how a program can use or does use information technology and with what results.

In addition to information technology and the context in which it is used, a third major factor that can influence the success of information technology in such programs is the implementation process. Here we include the series of decisions made and actions taken to acquire information technology, to communicate about technology to funders, instructors and clients, to integrate into the curriculum, and to develop a supporting infrastructure. Key aspects of the implementation process in adult literacy programs might include: writing grant proposals to funding agencies or information technology vendors; "networking" with instructional technology specialists in other programs; and obtaining media exposure for the programs' use of technology.

In general, then, we understand the process of choosing and operating information technology in the context of literacy improvement programs to be a complex and never-wholly-resolved sequence of choices, consequences, and evaluation, as dependent on local conditions as on the state of the technological art. It is within this context that we set out to gather some illustrations of what this process actually means in practice, to those who provide services, those who receive them, and those who oversee and manage the effort.

RESEARCH METHODS AND PROCEDURES

The Underlying Study Model

We believed at the outset that there was little point in compiling just another set of stories about interesting programs. What was needed, rather, was an analysis of such programs with an eye to their generalizability. This required, in turn, an analytical framework that emphasized the social and context aspects of programs as strongly as it did the purely curricular and technical.

A sequential replication case study design is most appropriate to arrive at a systematic understanding of how technology can be effectively used in addressing problems of adult literacy. The case study is the most appropriate method for defining and interpreting an ongoing process in a real world context, especially when the variables

of interest far outnumber the possible data points (Yin, 1981; Hersen and Barlow, 1976; Campbell, 1975). The cases should be regarded as "replications" because similar criteria will be used to select the sites, and similar information gathering procedures will be employed within them. Within these constraints, however, sites varied widely in type of technology, characteristics of users, staff and settings, and instructional strategies.

Our study draws its methodological framework from a growing body of empirical work on technological innovation in a variety of substantive domains and user settings (e.g., Tornatzky and Fleischer, 1990; Stasz, Bikson, Eveland and Mittman, 1990; Bikson, Gutek and Mankin, 1987; Bikson and Eveland, 1986; Bikson, Stasz and Mankin, 1985; Tornatzky et al., 1983; Berman, 1980; Rice and Rogers, 1980; Berman and McLaughlin, 1978; Markus, 1984; Markus and Connolly, 1990). This literature provides a robust foundation for identifying and documenting the factors most likely to account for the effective application of information technologies in a wide variety of public and private settings.

The consensus from this body of work is that understanding the consequences of technological innovation requires attention to three distinct but interrelated elements that we alluded to earlier:

- features of the **technologies** themselves;
- characteristics of the **context** into which they are introduced;
- factors of the **implementation** process, i.e., the series of decisions made and actions taken to integrate new technologies into extant settings.

It was not the purpose of this study to evaluate the programs under study. We took it as a given that each of the programs selected for analysis was making an effective contribution to adult literacy, in differing and illuminating ways. The aim was to identify distinctive features of the programs that uniquely demonstrate how different technological opportunities can integrate with and reinforce the general aims of increasing functional literacy. This entailed both assessing what the program's specific features of interest are, and understanding how they developed and are tied into a specific context. Only when that context is in turn understood can it be determined what about the project bears useful lessons for other settings and problem areas.

Neither was it our purpose to assess "best practice" in the field of adult literacy as such. The cases we selected for study are not necessarily held up as standards to be emulated across the board. Rather, each case was intended to have one or more elements that was uniquely interesting and enlightening in terms of understanding the general interactions of technology with literacy and learning.

Procedures

The first task was site selection. Identification of potential sites was an iterative "snowball" procedure, in which we contacted a large number of literacy experts, software developers, and literature in the field to get leads to programs that seemed to be doing interesting things. We had defined certain basic criteria that all sites had to meet:

- o have a **reputation** among professionals in the field of adult literacy for exemplary performance, at least in terms of technology applications;
- o be **significant** in scope, with a minimum of 3-5 staff and a commensurate number of students/clients;
- o have **been in operation** for at least two years;
- o be **accessible**; that is, have a significant portion of staff and students/clients available to meet with the research team on a timely basis.

By contrast, the sites were to be selected to exhibit as much diversity as possible in terms of:

geographical location, both regional and urban/rural: it was our intent to select one project from each of four main regions (northeast, north central, southeast, and south central); at least one project was to focus primarily on rural or remote populations, and another was to have rural populations as a significant part of its focus.[1]

administrative/management context: we intended to select one essentially free-standing program, one school-based program, one corporate-based program, one corrections-based program, and two others that while they may overlap one of these categories, do not wholly duplicate the context. At least one program was to be a largely or entirely volunteer operation.

types of technologies: At a minimum, we intended to include three sites using microcomputer systems, including at least one employing network-based (preferably distributed) technical arrangements, one site emphasizing interactive video, and one emphasizing telecommunications; the sixth site will employ a mix of technologies.

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[1] The geographical distribution criterion was modified to allow for the selection of two projects in southern California, where the research team was based. These two sites were done first, and served as opportunities to evaluate and modify the interview protocols as well as direct sources of data.

types of students/clients: we intended to include programs focusing on a variety of different population groups, including students with serious literacy problems, those with less serious problems of functional literacy, the handicapped, non-native English speakers, recent high school dropouts. low-skilled employees, older adults, the seriously socioeconomically disadvantaged, etc. Some programs were to target a relatively specific group; others were to address a wider range of clients.

While data gathering for site selection was under way, the initial interview protocols were being developed. We employed four largely structured interview guides, one each for program administrators, program operatives (teachers, etc.), technical experts (if any), and program clients.[2] The client guide was designed for use with groups of respondents. Somewhat more open-ended versions of the guides were prepared for use with "context personnel" -- that is, those individuals not directly part of the program who were in a position to shed significant light on its development and operations (such as government officials, school administrators, corporate managers, etc.) We needed to be able to contact both those formally involved with the program and those playing significant informal roles in its operation.

When contact was originally made with prospective sites, the purposes of the study were explained and the general sorts of data being sought set forth..[3] Appointments were scheduled by the research teams before going to the field. In addition, we collected as much initial public information, printed materials, program guides, and other documentation on the sites as they can provide in advance, so that the team would be generally familiar with the site before arriving there.

Site teams were usually composed of two interviewers, one senior and one junior.[4] The procedures to be followed at each site were essentially the same. Interviewing usually began with program administrators; two interviewers conducted this interview. Following this, the interviewers usually separated to conduct interviews with program operatives and technical personnel. Interviews with program participants/clients were usually in the form of "focus groups", with 4-8 clients interacting with both interviewers, at least one group and often more per site.

Confidentiality of interview information is difficult to maintain in a small number of specific case studies such as this. In general, we asked our respondents to speak "on the record" and for attribution. Often, however, respondents preferred to speak to the interviewers in confidence, and we felt that they should be given that opportunity. As a

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[2] The interview guides are included as Appendix A to this Report.

[3] Appendix B provides the names and addresses of our principal contact persons at each site. They have all given permission for their names to be used.

[4] Since it was the first done, the Watts case involved the entire research team. The jail case likewise involved almost all team members, and the Baltimore case used three interviewers.

result, a definably large portion of the data we report here was obtained under conditions that do not allow active attribution. We have therefore chosen in this report to refrain from mentioning names of individuals interviewed. While this to some degree reduces the "real world" flavor of the cases, it is consistent with our promises to our interviewees.[5]

Preparation of the individual case studies followed each site visits. Case writeups follow a generally similar format, with the narrative introduced by a table giving program data in summary form.[6] Draft cases were prepared by one of the original team, and reviewed and edited by the others who had participated. In addition, comments were sought from each site through the contact person, and this site feedback was incorporated into the drafts.[7] This final report is thus the product of a considerable iterative process. Signs of the many hands that went into it can be detected. This can be both good and bad. In this case, we hope that it can be interpreted as reflecting diverse inputs and the enthusiastic involvement of a large and vocal team of research participants and subjects.

Unfortunately, we live in a rich world of acronyms. The alternative to using them seems to be even worse -- that is, endless repetitions of long phrases or even more complicated circumlocutions. We believe acronyms to be the lesser evil. Therefore, we have often relied on them. To help, each case also includes a Glossary of those acronyms particular to that case. In addition, certain common ones are used in almost all the cases. These are:

ABE: Adult Basic Education

GED: General Equivalency Diploma (the test)

ESL: English as a Second Language

ILS: Integrated Learning System

JTPA: Job Training and Partnership Act (a Federal program)

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[5] We have in all cases included many direct quotes, sometimes attributed to a person (where permitted) or sometimes anonymously. All material in quotation marks is made up of such quotes. Where quotes are attributed to clients or students, they generally derive from our focus group interviews.

[6] The tables are in common format across all cases. However, not all information was available for all cases. Therefore, the reader will note certain gaps in the data. Undoubtedly, the gaps will be *exactly* what the reader wished to know.

[7] OTA also commissioned outside reviews of the initial drafts, and much useful feedback was generated by these reviewers.

To those readers who still find the proliferation of capital letters distasteful, we extend our apologies.

WHAT ARE THE RESEARCH SITES?

Within six sites, it is obviously impossible to represent the universe of adult literacy programs, or even all the relevant dimensions of that universe. However, we believe that we selected six sites that each have something unique to say to OTA, the Congress, and the literacy community. This section provides an overview of the sites we selected, and outlines what we believe each represents -- and does not represent -- in terms of generalizability.

Los Angeles County Jails

The Hacienda-La Puente Unified School District operates a correctional education program for the Los Angeles County Jail system. Operating over twelve diverse facilities, the program has made major use of video as well as computer technology. It is widely regarded as one of the most outstanding programs in correctional education, and has been very active in assisting other adult literacy programs both in and outside of the corrections area.

Correctional institutions are particularly key venues in the field of adult literacy improvement. Unfortunately, prisons appear to be a major growth industry in our country in recent years, and equally unfortunately, a very sizable proportion of those committed to the care and concern of these institutions are limited in literacy skills. The degree to which illiteracy itself contributes to encounters with the criminal justice system is open to debate; however, there is no doubt that criminality and illiteracy are frequently part of a destructive syndrome affecting a disturbingly large number of individuals. it should also be clear that unless the connection can be broken, the chances of rehabilitation are virtually nil. Thus, prisons are places where literacy programs are not merely highly practicable, but absolutely necessary.

The LA County Jails program is included in our sample as an example of how technology can work to great effect even within an environment of severe constraints on what technology can be used and how it can be used. It shows how a caring and committed staff can mobilize resources from a variety of sources and deploy them in the context of a larger corrections education program under conditions bordering on the impossible. It is clear that education is not the primary, or even a significant, mission of the jail system; that mission is custody and facilitation of inmate processing through the court system. But education *can* be positioned such that its value to the larger system is evident; in so doing, teachers can serve educational purposes without compromising their key values.

While jails are a big part of the criminal justice system, they are only partly representative of the rest of the corrections picture. Prisons -- institutions for longer-term incarceration -- are probably more important venues for literacy training overall, since they offer the possibility of more continuing access to clients and the opportunity to develop ongoing relationships between clients and teachers. In addition, literacy training in prison settings can be usefully combined with other kinds of training (for example, vocational education) in a synergistic pattern of enhancement of skills for life outside the walls. Jails, by contrast, offer a kind of "revolving door" for clients, and any attention given to education must be sandwiched in between many other priorities. So what works in a prison setting will not, in all probability, have the same effect in a jail. However, by contrast, one might argue that if one can construct programs that work in jails, it is highly likely that many if not all features of such programs might profitably be employed in prison programs.

For purposes of this report, the most interesting and potentially generalizable features of the LA jail program are the use of inexpensively produced limited-purpose videos, and the evidence that Macintosh technology can be effectively employed even under conditions of high security requirements. it also illustrates how the vision of one person is a necessary -- if not sufficient -- condition for development and implementation of a major technology thrust within an existing program structure.

Baltimore Reads, Inc.

The city of Baltimore is home to a number of community-based literacy programs, all operating within the general umbrella provided by Baltimore Reads, Inc. The city government has made a major commitment to literacy improvement, and has successfully mobilized a wide variety of community resources, public and private, toward that end. The organization operates two centers of its own, and provides a range of services and support to many more groups and programs.

The Baltimore case is particularly interesting as an illustration of a broadly based community thrust, rooted at least in part in the political agenda of the city. As the case shows, this has significant advantages, as well as some potential hazards. It also shows the need for a committed central coordinating point for technology applications -- and the difficulties involved in the creative exercise of such a role.

Baltimore is the quintessential "inner city", with all that entails in terms of urban problems, resource shortages, and social pressures. Fortunately, it is also a city that has been capable of generating several political generations of wise and effective leadership and direction, and a city with a strong community tradition that makes it possible to mobilize the efforts of many disparate groups toward common civic ends. The creation and operation of Baltimore Reads, Inc., is in keeping with numerous other combination public/private initiatives over the years, from a successful urban renewal program culminating in the magnificent Inner Harbor development to "urban homesteading" initiatives that have revived large neighborhoods of classic nineteenth-

century homes. The dedication of native sons like Cal Ripken Jr. to the welfare of their city is a common phenomenon. In short, Baltimore has had significant advantages in its efforts to pull together disparate groups toward common ends, based on a civic tradition that might be hard to replicate in cities with a traditionally more adversarial political-business climate.

On the other hand, the Baltimore case does show clearly how public/private partnership can leverage resources from both sides toward common purposes. Further, it shows how a central vision of technology use -- one that characterized the Baltimore program from its inception -- can both pilot technology applications and stimulate the extension of these applications into community programs that would otherwise stick to traditional methods. Finally, it illustrates that even modest investments in information tools themselves can have significant payoffs if applied broadly and creatively. We have included Baltimore in our sample to show how a whole community can be mobilized around the issue of literacy, and how that overall thrust can be focused into specific programs that in turn have payoffs for that larger community.

Watts Adult Education

The Watts Adult Learning Center is a component of the Los Angeles Unified School District, operating in the south central part of the city in a neighborhood that has seen more than its share of civic and community troubles. It is an example of how a school-based program can create and manage an innovative set of technology applications even within a giant bureaucracy.

Like Baltimore, the Watts case describes a program focused in an inner-city neighborhood. By contrast with the broad-gauge program set in Baltimore, the Watts adult education center's efforts are modest, and their use of technology less spectacular. On the other hand, it is an excellent illustration of how clever and dedicated professional teachers can make even a relatively unpromising kind of technology work effectively through effort, enthusiasm, and dedication to their clients. The Watts case is included in this set at least in part to show that it is possible to overcome bureaucracy, resource shortages, and technical limits when people care enough.

One point highlighted in this case (although also appearing in others) is the difficulty of expecting some form of "integrated learning system" to meet a broad range of needs, particularly when information technology has to be implemented in the context of a broader educational program. Watts has managed to make reasonably effective use of its system, but it has taken a lot of work and energy that could have been devoted to other ends. The case also has some cautionary tales relating to the necessity for local expertise in information systems; many of the problems that have complicated Watts' technical systems could have been alleviated if they had been more successful in cultivating a more effective local technology support team. This is not a criticism of the individuals involved in Watts, but more a commentary on the inherent difficulties with

trying to operate a technology-focused program within a bureaucracy as large as that of the Los Angeles Unified School District.

The Watts case also shows that even fairly traditional school-based adult education programs can use computer-based tools with a considerable degree of effectiveness, but that this can only be achieved through a fair degree of basic redesign of the program; it is *not* simply a matter of automating an existing traditional curriculum. Finally, it shows that technology's appeal to people across the socio-economic and educational spectrum is deep and abiding, and that even those who might initially have been considered poor candidates for hands-on computer use can take to information tools quickly and effectively.

McAllen Learning Center

The McAllen Learning Center is a community-organization-based program operating in the lower Rio Grande Valley of Texas. It serves an almost entirely Latino community, and manages to integrate its literacy services with a range of other initiatives in a synergistic and energetic fashion.

Like Watts, the McAllen experience illustrates the appeal of technology to a population who might initially be thought resistant to it. it also provides a vision of how technology can be used to support a broad program aimed not merely at literacy alone but at a full spectrum of social and economic problems that need to be addressed at the same time if real impact is to be made on the quality of people's lives. A concept of entrepreneurial development, combined with a firm set of roots in a local community, can serve as a foundation for a major social intervention effective across the board.

McAllen is also interesting from a technological viewpoint as a case of effective use of an integrated learning system. It is hard to determine the relative utility of the technology apart from the setting; however, it does appear that its system is one of the better and more flexible tools available to those who prefer the integrated environment. It certainly meets McAllen's needs for a technological support package that does not require large amounts of local support -- support that the community simply cannot provide. McAllen has succeeded in finding technology appropriate to its needs, technology it can live with. it may not be the most elaborate or sophisticated, but it is well matched to the requirements of the situation.

McAllen is included in our sample to highlight that the use of technology for literacy is not the exclusive property of urban areas, or of those inclined to high-tech solutions. McAllen is a grassroots effort to affect a broad scope of the lives of its people, and shows how technology can be an effective servant in pursuit of goals that go well beyond the merely technical.

Cuyahoga County

Cleveland/Cuyahoga County in northern Ohio has implemented a number of literacy programs that all derive support from the Community College District. Like Baltimore, this case represents a relatively broad-based community effort implemented through a variety of venues and approaches. It is both broader and narrower than Baltimore -- broader in the range of activities folded into its umbrella, narrower in the scope of its coordination and central direction. It is more a "confederation" of programs than a single program as such. Its value to the study is to illustrate how a coordinating entity with little direct power -- in this case, the Community College -- can have wide-ranging and significant effects.

The case also shows the value of allowing different programs within such a confederation to experiment with different kinds of technologies as long as there is enough in common across sites that central support is feasible. Moreover, it also provides evidence of the value of local expertise; in most components of the Cleveland system, gurus were alive and well. It is this expertise that allows such a highly decentralized effort to succeed. The Cleveland initiatives obviously operate within an atmosphere of mutual interest and supportiveness that gives synergy to what might otherwise be a series of disparate and even competing efforts.

UAW/Ford Workplace Sites

The United Auto Workers has teamed with the Ford Motor Co. to create a large number of literacy improvement projects operating at the level of the individual auto plant. Tailored to the needs of particular workplaces, these projects (of which we visited two)[8] provide a particularly interesting version of what is undoubtedly one of the hottest developments in adult literacy today -- that is, workplace-based educational intervention within the context of jobs themselves. The UAW/Ford program is *not* a job skills training program; rather, it is aimed at the development of skills that can serve workers off the job as well as on. It is truly a collaborative effort between the company and the union that serves goals not directly related to the more specific interests of either party alone.

It also illustrates some of the difficulties of implementing such joint programs, and the need for thoughtful and careful planning and negotiation to make things happen. Particularly in a fast-changing and volatile environment such as that faced by the U.S. auto industry today, external circumstances can be expected to have rather immediate effects on how programs are structured and managed. In such an environment, educational goals cannot be clearly separated out for attention, but must be considered in context. The program has done an excellent job of defining a broad mandate, but within that mandate there is continuing need to remain focused.

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[8] One in Michigan and one in Ohio, in addition to the project's general headquarters.

In terms of technology, the decision has been made to allow a wide range of different approaches, and this seems to work given the different kinds of program environments folded into the overall effort. Regardless of the technology selected in specific instances, they seem to be able to make effective use of it. As in other effective sites, computers and video are tools, not ends unto themselves.

SUMMARY

Across the six cases, we believe that we have an interesting balance of urban and rural, high-tech and low-tech, computer-based and video-based, school-based vs. community-based vs. government-based. Indeed, there is so much variation among these cases that it may be difficult at first to see what common themes emerge from the case study exercise. As we return at the end of this report to this search for such common themes, it will be well to remember that our purpose has been to seek out the diverse and the interesting, not to find the "typical", which in fact does not exist. Diversity is the nature of the beast. None of these cases is truly generalizable to anything beyond itself; each is idiosyncratic.

Obviously, there are common issues attended to across sites. Readers will quickly notice that virtually all the sites feature many programs in common: adult basic education, GED preparation, usually high school equivalency and English as a Second Language.[9] The other interesting common feature is that very few of them have a clearly articulated "instructional philosophy" or guiding set of coherent underlying assumptions. It is simply not possible to place these cases into ideological boxes. All the program administrators we interviewed are pragmatists, ever in search of what works, whether or not it is necessarily consistent with what they already have. This makes for great vitality and considerable accomplishment, but does *not* make for easy mapping of these cases into the conceptual space of adult literacy as a discipline. We ask that our readers take these cases for what they are worth -- descriptions of people doing the best they can in turbulent and difficult environments -- and map into their own conceptual space as best they can.

Collectively these cases serve to illustrate that technology applications in adult literacy are alive and well, and that for the most part there is great good sense employed in technology decision making. That's the good news. The bad news is that technology effects are inevitably mediated by organizational and social contexts. We believe that the most basic lesson to be drawn from our study is that tools, uses, and situations constitute an intertwined braid; none can be fully understood apart from the other. In the detailed cases that follow, we hope that this interplay comes through loudly and clearly.

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[9] The main exception to the ESL program appears to be Cleveland, where little active ESL programming is under way at present; however, respondents there did indicate that they plan to move into the ESL area in the future.

WATTS ADULT LEARNING CENTER (WALC)

1625 East 112st
Los Angeles, CA 90059

VIGNETTE

Shawn rises early every weekday. To be at school at 8:30 a.m. at the Watts Adult Learning Center (WALC), in addition to getting herself ready she has to help prepare her daughter, Ashlie, for school. As they leave home, both mother and daughter make sure they have all their materials for school.

Shawn walks Ashlie to school, which is about five blocks away, and then doubles back to catch one of the two buses that will take her to WALC. The entire trip takes from 20 to 30 minutes, depending on the timeliness of the bus service. Even though she receives a transportation allowance from the County of Los Angeles for $25.00, it is not enough to cover the $45.00 bus pass. As she arrives at school around 8:20, everybody greets Shawn. She has been attending WALC for a year and a half. She first came when the Los Angeles County Department of Social Services told her that since her daughter was of school age, she either had to attend an educational or a vocational institution. Since Shawn did not receive her high school diploma, she opted to attend WALC.

When she arrived at WALC, she had a reading level between 3rd and 4th grade. She began her reading instruction in the computer-assisted reading lab. Though anxious about using the computer at first, she really learned to enjoy using it to learn to read. While in the lab, she increased her reading skills to almost the 5th grade, and also picked some typing skills. Since then, she has been promoted to the next reading class and is now reading at about the 6th grade level. She hopes to continue another year and a half in order to get her skills to an 8th grade level and study for the GED -- she wants to be a nurse. Shawn has found the most rewarding aspects of the program at WALC to be the support from faculty and students and the great increase in her reading skills -- she can now help her daughter with her homework.

OVERALL DESCRIPTION

Organization Structure	School Based
Budget	
Amount	Not Available
Type	ABE (25%)
	School District (25%)
	GAIN (50%)
Staffing	
Teachers	Six
Technology Specialist	One
Curricular Content[1]	
ABE	60%
GED/High School Diploma	20%
ESL	20%
Life Skills	50%
Computer Literacy Training	10%
Clients	
Total	180
Race	
African-American	63%
Latino	35%
Other	2%
Sex	
Female	70%
Male	30%
Age	
Range	16-86 years old
Average	32 years old
Recruitment	
Public assistance referral	50%
Other social services	10%
Word of mouth	40%

[1] The total may exceed 100%, as students may enroll in more than one program.

Retention/Evaluation	
Complete high school diploma	25%
Grade level improvement	50%
Technology	
Hardware	
Type	IBM PS/2s, Models 25 and 30
Quantity	16
Other	Four computers with laser discs
Software	Principles of Alphabet Literacy (PALS)
Installation costs	$85,000

CONTEXT

The Watts Adult Learning Center is able to offer its students a variety of classes and activities aimed at enabling students to grow and develop in an ever-changing environment. Though limited by both community and district resources, WALC has managed to create and establish a strong presence in the community with a commitment to the advancement of its students. Within its limits, it illustrates how a relatively modest investment in information technology can be used to leverage a rather conventional adult education program toward increased client services.

WALC, although a component of the Los Angeles Unified School District (LAUSD), is very similar to a community program in terms of its presence and respectability. As the program's governing body and provider of financial resources, the local school district has played an major role in the implementation of information technology at the site. But as in many instances of technology implementation, it is the individual effort that expands the capabilities of the tools. The teachers at the site, with the support and approval of administrators, have expanded the capacity and potential of the technology, both in terms of the use of hardware and supplemental support materials.

Part of the strong identity of WALC derives from its place in its community. In an area with limited resources, WALC stands as a strong distinguished community oriented entity, even though it is a part of second largest school district in the country. It is located in a primarily Black and Latino, economically-deprived area of Los Angeles, across the street from public housing projects. Business opportunities in this area are limited, and as a result unemployment in the community is extremely high and many of the residents receive some type of public assistance. WALC's reputation in the community is very strong and positive. The administrators and staff are well known because they have remained in their jobs for such a long period of time.[2] This

[2] There have only been four coordinators in about 20 years, and some office staff have stayed at the facility for

consistent leadership has resulted in a very positive image of the institution and a very productive school environment, as well as a significant measure of "clout" for the program in the community and even with the LAUSD administration.

PROGRAM DESCRIPTION

HISTORY AND MISSION

The Watts Adult Learning Center began its mission of being a multi-service educational center early on in the expansion of adult education in the school district. LAUSD began its Adult Basic Education (ABE) program at one site in 1965; it has since expanded to 188 sites located throughout 750 square miles.[3] WALC opened in 1968 in an old two-story, eight-classroom wooden structure that some in the community considered an eyesore. Initially, this site (like many other sites throughout the district) was designed only to provide basic reading, language and math skills (from 0 -8th grade). As a result, many prospective students had to be referred to programs at other locations.

Because students did not always follow through on these referrals, the district moved toward a "learning center" concept. At learning centers, which are located in various parts of the Los Angeles area, clients were supposed to have access to a wider range of educational offerings, including basic high school education and ESL and GED preparation, as well as basic reading. WALC is one of six learning centers throughout the district, each associated with a particular adult community school operated by LAUSD's Adult Education Division. WALC is one of the Jordan-Locke Adult Community School's 40 sites; these sites are located at a variety of facilities, including government buildings and community-based agencies.

Classes are offered at a variety of times that are convenient for clients. The Jordan-Locke program operates classes from 8:30 a.m. until 10:00 p.m. Other sites within the Jordan-Locke program may offer only one or two classes, which are as likely to be educational and recreational in nature as purely academic. Non-learning center adult education sites are often targeted to a specific population (the LA Achievement Center, for example, emphasizes 15-17 year-olds), or to a specific discipline (the Business Education Center develops office skills). As a learning center, WALC offers a full range of educational resources which can enable students to receive a high school diploma or prepare for the GED.

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about fifteen years.

[3] LAUSD overall has over 800 sites, and is the second-largest school district in the U.S.

STRUCTURE AND ORGANIZATION

The Watts Adult Learning Center very much reflects its school-based home. Regularly scheduled classes meet at fixed time periods each day, and clients are referred to as "students". The physical arrangements all speak of "school." Student papers are posted on the bulletin boards. Colorful basic reading posters adorn the walls. Students indicated that "at first there is some embarrassment" about attending school and learning how to read as an adult, but because many of the students are products of the LAUSD, the familiar surroundings and supportive personnel may help to make the transition back to school fairly easy. Many students liked the school experience at WALC; they see it as a "place to receive an education and where they can also be treated as adults."

WALC offers six programs of study which enable students to work toward a variety of goals:

Reading Program: Students with low basic skills as determined by their scores on the Wide Range Achievement Test (WRAT) are assigned to one of two reading programs. The WRAT tests, which all students take, allow staff and faculty to quickly place the students' educational levels, and limits the quantity of testing for students, especially those who have limited reading and language skills.

Those reading at the 0-4 grade level can be taught in the computer-based PALS (Principles of Alphabet Literacy) reading lab, or in a traditional classroom environment if they are intimidated by computer technology. Most of the older students (60+) tend to opt for the more traditional classroom environment. Many students look forward to learning how to read and use the computer simultaneously. Students typically spend about two hours in the reading lab.

Students testing higher than the fourth grade in reading, or who have shown sufficient improvement from participation in the PALS lab, move on to the traditional classroom to continue their reading program. This program does not employ information technology; reading is taught in a traditional manner in small groups and writing assignments are given.[4] The goal of the basic reading program is to get the students to an 8th grade reading level. This achievement can take various amounts of time, depending on a student's motivation and life situation.

Individualized Instruction (Diploma Plus): Those students scoring well on the WRAT test are then given the Test of Adult Basic Education (TABE). Students placing above grade 7.5 on the TABE are placed in the Diploma Plus

[4] Some consideration has been given to obtaining computer materials for this group; however, at this point resources for such an extension are simply not available.

program, where students work toward a high school diploma or a GED. Only those students who score greater than 9.0 are allowed to pursue the GED; those between 7.5 and 9.0 work toward their high school diploma. It is felt that those placing 9.0 or better on the TABE test are fairly familiar with high school curriculum, and can be moved rapidly through the GED process; while lower scorers are likely to need more attention.[5]

Math Lab: Students needing to enhance their math skills can do so in the math class. Topics taught range from elementary arithmetic to geometry. About 15 Apple II GS's are available in the math lab, but are not used because of a lack of adequate math software. Arrangements are being made to purchase software for math studies, although it is proving difficult to find out what might be available.

Life Skills: Those students in the "Greater Avenues to Independence" (GAIN) program are required to take a class in life skills, designed to provide students basic life competencies.[6] The course covers math, interviewing skills and comparison shopping, along with other components.

English as a Second Language (ESL): WALC also teaches ESL classes. All WALC's ESL students have Spanish as their native language. Both the Assistant Principal and the Principal see the changing demographics of Watts as a major future challenge -- the Watts community is expected to be 90% Hispanic by 1997. More ESL classes will have to be offered, increasing the need for more teachers with bilingual and bicultural skills and an understanding of diversity of cultures.

Computer Literacy: Enrollment in this class is voluntary. This class teaches the basics of word processing and spreadsheet use. This class meets from 12:30 - 1:30, using the same computers used by the PALS lab in the morning.[7]

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[5] The staff and faculty encourage to students to work toward the diploma if possible. Unlike GED preparation, working toward the high school diploma exposes students to a greater and a more in depth study of topics; it may be the last opportunity to expose students to science, social studies, literature and other high school courses in so broad a manner. Getting ready for the GED, by contrast, often boils down to "test preparation."

[6] GAIN is a Federally-supported welfare reform initiative aimed at improving employability skills among current welfare recipients. It is operated by a contract agency on behalf of the Los Angeles County Department of Public Social Services (DPSS). Individuals on public assistance are required to attend school to obtain skills which will make them employable as soon as their youngest child reaches the age of five. Several of our cases receive support through GAIN programs in their localities.

[7] This causes some difficulties, described further below.

One way students remain focused on educational goals is through counseling. Educational counseling services are available to students approximately once a week. The counselor can help the students determine how they stand in the educational process (for example, credits needed for a high school diploma), help them set realistic goals, and identify a process to achieve these goals.

Enrollment in classes is open-entry/open-exit; courses of instruction are individually tailored, and staff gives great attention to the quality of their interactions with students. Clients attend one or more classes per day (usually four), depending on their skills and interests. Although the program is open in terms of enrollment and individualized instruction, it still follows the traditional school model closely in format. It takes a student about 60 hours to complete a class, which ideally takes a semester (18 weeks). Classes are held from 8:30 - 2:00, with most students attending from 8:30 12:30. Classes are usually 1-2 hours in duration.

There is a continual and regular turnover of program participants. About 3 to 5 new students enroll each week. Upon arrival, placement tests are given and students' high school transcripts are requested. At WALC, it is not uncommon to find students who have graduated from high school but are unable to read even at eighth grade level. These students, along with others, work with staff to determine an appropriate course and schedule of study.

WALC has six classrooms which can accommodate about 35 students each; thus maximum enrollment is 210; they also have the capability to run double sessions which could be held in the afternoon, and thus double capacity. Evening classes are not usually held due to safety reasons.[8]

RESOURCES

Adult education is a "pay as you go" program within LAUSD. If there are not enough students enrolled in a class, often the class is canceled. Exceptions are made for classes or programs that are one of a kind or are paid for by separate funding, such as GAIN. There are a variety of other funds which pay for programs, such as private donations, Federal ABE funds, Perkins funds (Federal dollars targeted for vocational education), and District funds, much of which is received from the state based on a formula of average daily attendance.[9] The program is free to those on public assistance. All students are asked to contribute $.50 to a voluntary student body fund. For high school subjects, students are required to pay $5.00; the GED preparation class is $6.00.

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[8] There is little that the school could do to alleviate these conditions; it is a generic problem of the community.

[9] Much of the private donation money is targeted toward adult literacy; the district has from 25-40 different sources.

WALC's Coordinator reports to one of three Assistant Principals (one an educational counselor) who in turn report to the Principal of the Jordan-Locke Community Adult School. The Assistant Principals and Principal work out of the two main campuses for the Adult School, located at the Jordan and Locke High School sites. The Principal and the Assistant Principal had both taught in LAUSD for many years, and joined the Jordan-Locke program in 1991. Both have considerable experience teaching in schools with culturally diverse student bodies. These individuals are primarily responsible for the coordination and operation of the Jordan-Locke program across its 40 sites including WALC, and act as liaisons to the administration of the adult division of LAUSD.

Though changes in the educational process begin at the local school, policy decisions are made "downtown" by the Los Angeles Board of Education. Although each site offers courses to meet the needs of their particular communities, any changes have to be approved first by a Curriculum Council (composed of teachers, administrators, counselors), then passed on for consideration by the Board of Education -- a process that can take quite a while. Though the process is quite lengthy, the Curriculum Council and the Board of Education usually advocate and approve curriculum changes that have been developed by faculty and staff throughout the district.

There are seven teachers at WALC, and if class sizes exceed 30 students, an aide is assigned. All teachers have state certification in adult education and can teach a variety of subjects. Though the current teacher of the computerized reading lab had limited experience with computers, she did receive some training from IBM in the particular software being used here. The computer literacy teacher did have some educational and professional experience in computers. Teachers mentioned that they "enjoy working in adult education because they do not have to deal with discipline problems, are motivated by the desire of adults to learn, and can very easily be rewarded by the progress of their students."

Currently, WALC is housed in eight prefab bungalows, three of which were brought in about four years ago when it was obvious that the older building was a safety hazard; the campus is relatively small.[10] The facility is immaculately kept, and obviously the participants care a lot about keeping it up. The rooms are quite large and can accommodate approximately 30 students. The campus is located next to an elementary school where some ESL classes are offered and where some clients' children attend classes. Currently, there are no educational programs planned with the elementary school. This reflects both the current fiscal realities of the district and the bureaucratic separation of adult and elementary school education.

Despite the lack of coordination of instructional programs, the administrators of the two schools have had an ongoing relationship since the inception of WALC. The principal of the elementary school agreed to the expansion of WALC and provided the land

[10] It also provides parking for students and staff inside a security fence.

needed for the additional buildings. This relationship continues today; staff and students recently held a softball game on the campus of the elementary school. Parents of the elementary school are kept apprised of available classes and activities at the center.

CLIENTS

The average age of WALC students is about 32. Though anyone over 16 years old can enroll, the coordinator usually only takes those 17 and older. (In her opinion, 16 year-olds still need a little bit more structure, and are referred to another site). The upper end of the age range is currently 86. About 30% of the students at WALC are employed. Another 50% are required to attend school as part of their participation in GAIN.[11] Although attendance at school is theoretically required for those in GAIN, it is not difficult to obtain exemptions from DPSS, so that few really reluctant students actually enroll. Actually, a large number of those required to attended continue on in one or the other of the WALC programs. Many students in GAIN indicated that they recognize the "importance of receiving an education" and "how important it is for their children," and "the role of the WALC experience in increasing this awareness."

Most students were referred to WALC either through GAIN, other social services agencies in the neighborhood, or word of mouth. A schedule of classes is produced and distributed throughout the community, and attracts further inquiries. Most students either live near by or are familiar with the neighborhood and thus decided to attend school here.[12] As a result, there are a couple of parent/child pairs (both adults) attending the school.

Approximately 75% of WALC students seek a high school diploma; of these, only about 25% achieve this goal. Those who left high school, have fairly good reading and math skills and need approximately two years of credits can usually obtain a high school diploma in two years or less; WALC has about 2-3 such graduates each semester. Even though about 50% of the students do not achieve their goal of a high school diploma or a GED, most make some progress in the program, even when they apparently attend school mostly for social reasons. In large part, the failure of more students to receive a GED or high school diploma can be attributed to how much they would have to learn; many would need about four years in the school to get a diploma, but the average time in school is only about two years. It can be expected that in an ideal situation where students attend school every day, all day, they can raise their skills at least one grade level in a semester.

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[11] It is these students who are required to attend the Life Skills classes, though others may sometimes enroll.

[12] GAIN students are limited in their choices of sites, since only the learning centers offer the required Life Skills material.

INSTRUCTION

OVERALL APPROACH

The stated mission of WALC is to provide vocational and educational services to a diverse population. Though the primary emphasis of the center is to provide educational services, the staff and faculty also strive to create an environment which enables students to be well prepared for life outside of school. WALC personnel are acutely aware that their clients are not conventional students; by design, the program, staff and faculty attempt to accommodate the fact that their students are adults with complicated lives. Examples of this includes promoting voter registration and including the newspaper as reading assignments. Providing the students with the skills and tools needed to function productively, care for themselves and their families is a high priority for the staff at WALC. It has an elected student government which is responsible for helping to solve campus problems. Additionally, guest speakers are invited to the classrooms fairly regularly. Last year, the major topics included safety and the problem of sexually transmitted diseases. Additionally, students participate in field trips to a variety of locations throughout the area such as museums and public buildings.

The faculty and administrators try to insure that students are "better people for attending the Watts Adult Learning Center." The students are treated as "adults" and faculty and administrators realize that the students have adult concerns, especially in terms of seeing an immediate impact of their studies in their lives. Adult problems are also a concern; finding a baby-sitter and going to the doctor are real life events which prevent students from attending class. These concerns are handled in such a way that the students must take responsibility for their own actions and needs; the completion of coursework and finishing the program is the responsibility of the student. In view of these difficulties, teachers at WALC try to be flexible, to respect their students, and to understand that learning is a process shared by teachers and students. One teacher noted that "I try to be as accepting as I can...flexible but directed...it's a feeling of 'we' -- a joint venture...win-win".

As the Coordinator noted, "there is at least as much value for these students in the process of learning as in the instrumental value of anything they might take out of the program." The goal for those in ABE generally is to raise their reading level in practical terms and relate what is learned in class to real life. As one student indicated, "Now I can read the paper."

As a way of reinforcing this learning environment, an annual breakfast is held each year to honor some of the best students at WALC. The breakfast has been a major event, with district administrators and local city council representatives participating. Due to the general economic downturn, the breakfast, which was paid for by students, will probably have to be scaled back somewhat in the future. Additionally, contributions and resources from the private sector, in terms of both funds and

personnel, are not as readily available as they were in the past due to the current recession.

TOOLS

The acquisition of information technology resources at WALC was typical of many different kinds of organizations --that is, they essentially backed into it. Even though the purchase of hardware and appropriate software was under discussion during the 70s and 80s, LAUSD adult division administrators saw no need to jump in, given the limited capabilities of products and vendors. Because of minimal funding, the variety of hardware vendors, and questions about the ability of vendors to remain viable in the future, the administration was concerned with spending large amounts of money on unsupported products and materials. At that time, the administration thought the wise decision was to wait and see which vendors maintained a presence in this field. As one of the administrators noted,

> "...adult education programs weren't favored by the computer companies. There weren't any of those free Apples available that they gave out to K-12. I could see that too many people were trying to sell hardware, and that some of them wouldn't be around for more than two years. The problem in the eighties was the lack of software for adult education purposes. They didn't have much for below the 8th grade. They thought that above 18 years old and above 12th grade was (the only type of) adult education..."

WALC personnel looked into a variety of information technology options, but were not ready to buy; eventually, the decision to purchase a computer package was made at the district level.

PALS (Principles of the Alphabet Literacy System) is the computerized reading program installed in the WALC reading lab for instruction in the 0-4 grade level. PALS is an IBM supported instructional program, interactive in structure and implemented on computers and laser discs. The lab was installed at WALC four years ago, during the 1988-89 school year.

WALC has sixteen IBM computers are arranged in one large lab room. Four of the machines are attached to laser disc players. The other computers have floppy disc drives, and are used for reading software that is designed by the district, and also used during the PALS class, and for computer literacy training in the afternoon, each day for an hour.

Initially, the teachers slated to use PALS were trained by support persons who had previously worked for LAUSD and had taken jobs with IBM. In the past few years, additional reading and word processing software has been created by the district and new software has been ordered for the computer literacy program. Hardware maintenance requests are made through the district, and some difficulty in securing

timely assistance is evident. During one of our visits, several machines were malfunctioning, and the PALS teacher indicated that she was glad that she hadn't called in an earlier problem since she could now get one call to handle all of the problems. It is the teacher's responsibility to report problems to the coordinator, so that she can secure assistance as needed.

Since the installation of PALS, purchasing decisions for computer and computer materials have changed. Currently, purchasing decisions regarding information technology are similar to those regarding any other purchase of materials and products -faculty and staff are able and encouraged to make recommendations for purchases that best meet the need of students. Software can be purchased by the site coordinator from her budget. The teachers of both the PALS lab and the computer literacy class can request the coordinator to purchase needed software materials, just as they would any other classroom materials.

TECHNIQUES

After enrolling in the PALS class, students work in pairs on the PALS program and take on a number of other projects concurrently. There is also an aide in the class who is available for students who need one-on-one instruction or assistance, such as a need to read aloud or practice writing the alphabet. The students have to work in pairs, with each pair having similar reading levels, especially when completing the PALS workbook; this can present a problem if one of the students is absent. However, the positive side to this is, as the teacher noted, "the heightened awareness of the effects of a person's behavior on others" -- the teacher feels that responding to positive peer pressure is a useful lesson to learn. It also relieves some of the direct pressure on the teacher to interact with each student.

Based on standard speech, the PALS program is not designed for ESL students or students with accents. Therefore, those students who do not have English as a first language or have different speech patterns may have to repeat many of the programs in order to successfully say a word as the computer does. Based on their reading level, students begin a PALS phonics program in which the computer shows one word, additional words with the same sound are shown and repeated by the computers and then the original word is shown again. To get the student accustomed to the sound of the word, the student is asked to repeat the main word a couple of times.

In addition to the phonics work, students also begin working on the "PALS story" on the computer. Set in medieval times, the story has as its central focus a king and queen. The students work in pairs as the computer reads the story to them.[13] The information is stored on six laser discs and the reading can be regulated by the student; students push the screen when they are ready to move forward, or can return to a previous page

[13] So that students can work independently, headphones are often (although not always) used.

at any time. The keyboard can also be used to control the story. Some of the same words in the phonics exercises are used in the story. The teacher will periodically ask the student what is happening in the story to insure that the student is paying attention and is understanding the information.

As the student progresses, he/she is responsible for writing a story using some of the same words that were used in the story that was told to them by the computer. Again, with students in pairs, the computer tells a new story, both verbally and in writing on the computer (captions are written out on the screen). The computer asks the students to write the words spoken by the characters; one student types the letters on the keyboard and they appear on the screen, while the other student writes the same words in a workbook (when this is complete, the students switch roles). The workbook begins with some very simple words and ends with complete sentences that can be very difficult for some students.

In addition to these drills on the computer, the teacher has added some other work and drills for the students. The students will use the software designed by the district to drill them on words. They will also practice the alphabet, both letters and sounds, twice each class period and practice the keyboard and use a typing book which is part of the PALS program, to drill the students on similar and dissimilar words. Additionally, there are other books and exercises available for the students.

The computer literacy class, which involves instruction in the use of word processing and spreadsheet packages, is entirely voluntary and not integrated with other reading programs at WALC. Nevertheless, it is a very popular program. While the PALS lab sometimes suffers from lack of attendance at the beginning of the semester, the computer literacy lab is full almost every day after the start of the semester.[14] Instructors at WALC believe that the computer literacy program actually improves students' attendance in other classes because it brings learners into the school. Many students enjoy the class so much that they remain enrolled in it for as long as they stay at the school. Instructors believe it complements students' work in other programs, including ABE, for it enables them to practice what they have learned.

Evaluation Procedures

Though no systematic assessment or evaluation has been completed, there are numerous subjective signs of WALC's success.[15] For example, despite the initial resentment of some individuals in the GAIN program to being forced to attend school,

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[14] According to one administrator, "I never heard of a waiting list for the PALS lab". This may reflect student demographics , planning uncertainties, or other factors not immediately apparent.

[15] Formal evaluation is not generally characteristic of school systems, particularly not unwealthy ones. Simple tabulations of program participants (leading to the figures described earlier) are about as complicated as the system is able to support.

most have seen positive results in the program. Students spoke of feeling "little or no embarrassment during the enrollment process" at WALC. The students indicated that they "now feel much more comfortable helping our children do homework or answering the everyday questions of a youngster." Their self-esteem has risen because, as one student said, "I no longer have had to refer my child to a friend or relative for answers." The ability to intervene to break the vicious cycle of adult illiteracy perpetuating child illiteracy is seen as one of the major strengths of the program by both teachers and administrators.

In addition, since the reading program has the students using current magazines and newspapers, students feel more comfortable reading this material on their own, "not only reading cartoons." As one teacher said, "It's mostly a boost...they've gone from one class to the next, not knowing how to succeed. But when they come here, they learn a completely new skill really quickly --they see that they can *do* something...". Self-esteem-raising exercises are part of the curriculum.

The desire of former students to share both their successes and hardships provides some ongoing evaluation for both administrators and students. Administrators are able to collect information in regards to what was helpful, lacking or insufficient for these individuals while at WALC. Students, on the other hand, are able to assess their skills and desires based on a person who, with similar experiences and background, has created new dimensions in life with assistance from those at WALC. It is this environment that persuades some of those who are unsure about returning to school to "give it a shot." In fact, many students, some of them originally the most resistant to the program, have now found time to volunteer in the office. One student even went on to finish college, and finally came back to work at WALC.

WALC presents an environment in which goals and dreams can flourish. In terms of philosophy, WALC staff and faculty have a strong desire to "empower students and assist them in the "ability to do for themselves." Students are encouraged to set realistic goals and staff and faculty do whatever possible to help students achieve these goals. Many come to WALC hoping to acquire skills that will enable them to get a job, in terms ranging from the general to the very specific. Students commented that "I want to use this information to help myself," "I want to be an LVN," "I want a contractor's license and I want to build my own house," "I want a yacht and a house for my daughter so she can have her own room."[16]

ISSUES IN TECHNOLOGY USE

Most of the students find the PALS lab more motivating than conventional teaching techniques. Their self-esteem gets a boost because they can see some progress

[16] WALC staff acknowledge that there is occasionally some difficulty with the "reality check".

almost immediately. The students say they "are learning to read and write, in addition to learning a few typing skills." In fact, one student indicated frustration with "being promoted out of PALS to the regular reading program just as I was beginning to feel very comfortable with the computer and its operation in the lab." Comments included "I got good at typing", "I can spell without looking at the keys", "I am used to a typewriter, but I was nervous [about using the computer]. But I started liking it."

According to the PALS lab instructor,

> "...adult learners benefit from the ability to drill themselves repeatedly at their own reading level. Because they themselves control the pace of instruction, they do not have to contend with real or imagined impatience on the part of the instructor or other students and the attendant fears of embarrassment."

She thinks the computer is an asset because it "allows the students to drill themselves repeatedly on their own," at their specific reading level. She then has the time to spend with each of the students individually as the need occurs. She does recognize the limitation of the computers and the need to bring other materials to the classroom. The PALS lab, in combination with other classes, is not an end in itself but a vehicle to learning other material.

In contrast to more personal forms of assistance, adult learners find the anonymity of computer-assisted instruction to be a real plus; as one participant reported, "It is hard to ask for help with reading on the outside and to get help." Adult learners who are not intimidated by the computer, or who overcome their initial discomfort, tend to find their learning efforts reinforced by their use of the computer. Because they get rapid feedback on progress achieved, adult learners who use the computer get a boost to their self-esteem through mastery of an unfamiliar information technology and the acquisition of typing skills, both of which are more concrete and immediate to them than the initial steps toward learning to read and write.

One of the major benefits of the PALS lab is the use of the same hardware to teach computer literacy. Though it may present difficulties at times, the use of computers to teach specific computer skills and techniques is important. Instead of these machines sitting idle during the time the PALS lab is not in use, they are used to a teach a competence that may not have been available to the students had the PALS lab not been installed.

While neither the computer literacy class nor the PALS lab is viewed by instructors or by learners as providing immediate job-relevant vocational training, these classes are viewed as opening up new employment possibilities. After all, it is increasingly the exceptional job that does not involve some interaction with computers. Some WALC clients develop aspirations for further education; as the Coordinator commented, "Once they (students) get here and they find out how successful they are, they decide to go to

college." For college bound WALC students, computer literacy instruction is seen as a useful skill for writing papers and doing mathematics assignments.

PALS can not teach reading on its own. As a result, the PALS instructor has augmented the information technology with individual coaching, exercises of her own design and software produced by the district. She also found the linear approach of PALS to be somewhat difficult for WALC's adult learners. The plan for students to fill in workbook materials in matched-skill pairs tends to break down when one of the partners is absent. The WALC instructor also expressed dissatisfaction with the content of the PALS learning materials, particularly the story. Understandably, many adult learners have difficulty in relating to its romantic and impractical theme. While learners were not enormously put off by this content, they indicated that considerably more relevant and engaging courseware would be appreciated. As one learner indicated, "we would like to see some newer materials."

One information technology-related problem we observed at WALC stemmed from the dual use of the single computer lab for PALS reading instruction and for computer literacy training. One of the great attractions of an integrated learning system such as PALS is that it is fully customized to the learning application, so that instructors do not need to learn the details of peripheral equipment, operating systems, and multiple software packages with different interfaces. But because the hardware is used for both the PALS software and word processing and spreadsheet packages, the teachers have to have some knowledge of the operating systems in order to successfully change systems. Consequently, the special-purpose PALS machines are reconfigured as general purpose machines during those times when the single computer lab is devoted to computer literacy instruction. This, of course, undoes some of the advantages of an integrated learning system, as we observed first hand, when the PALS instructor had difficulty finding a machine that would run properly for a PALS demonstration. She attributed the problem to people in the computer literacy program "messing around in DOS" and altering critical system boot-up configurations.

Other information technology-related problems at WALC stem from the program's dependence on LAUSD for all of its technical resources, including equipment, software, maintenance and support. According to WALC administrators, their major problems with respect to information technology is that they "...do not have enough of it". WALC does not have the authority to request needed information technology support services directly; due to a lack of funds, these support services are not provided to the adult education program. As a result, technology support depends on local knowledge and a small informal network of individuals who can be called upon for their expertise. The problems experienced by the PALS instructor are one symptom of this problem.

The computer literacy teacher described another. Some time ago she ordered Power Point software for the program through the usual LAUSD channels. When it finally arrived, after a lengthy delay, she realized that it would only run under Windows with a mouse, a hardware/software environment which WALC did not have. Now she has to

order these items, and she expects that it will be a rather long time before Power Point is up and running at WALC. The lack of technical support services, thus results in delays because no one is available for consultation. Equipment maintenance also must be requested through LAUSD, and fulfillment of the requests often takes weeks.

Ironically, the other PALS lab in LAUSD does not seem to have been deployed to best advantage. It has been located in East Los Angeles, where the majority of students speak Spanish as their native language. Because PALS is designed for native English speakers, those who do not have English as their primary language are not able to get as much out of this technology as native English speakers; they would benefit much more from a technology designed to support ESL instruction. Clearly appropriate resource allocations are difficult to make within a diverse learner population. It is reasonable to suppose that political considerations might have affected this distribution.[17]

Though the computer technology has been fully integrated into the basic reading course, there is no use of the computer for administration and management of the program. The heavy burden of paperwork necessary to account for the students and handle billings and reporting to a number of different agencies, including even the attendance records, is still handled manually. Administrators wished that they could get some use out of their own computer equipment to assist in data management.[18] However, there seems to be little expertise available of the kind that would be required to make this kind of transition in information environments.

There are no explicit plans for new information technology use at WALC. Administrators at WALC do not anticipate great change in the way adult literacy programs are offered in their school in the foreseeable future; funding is the major concern. As a result, there are no immediate plans to institute another computerized reading lab for those in the more advanced class. There are no plans at present for networking the computers at the different Learning Centers or other parts of LAUSD. PALS is not an environment that encourages networking of any sort.

GENERAL ISSUES

Students learning to read and write, obtaining relevant job skills and working toward a diploma or GED are just some of the concerns at WALC. Staff, faculty and students have to be able to manage a number of other issues that are a part of everyday life. For example, the lack of child care facilities on the campus and in the nearby area

[17] Los Angeles is now approximately 50% Hispanic and only 12% African-American in demographic makeup. A degree of tension between these two communities in terms of distribution of public resources has been widely commented on.

[18] They are able to do some word processing at least.

severely affects student enrollment and retention, particularly for Hispanic families with multigenerational households. When the parents are working, the oldest child is often responsible for looking after the children -- regardless of whether that person is in fact attending school. Conversely, if the oldest child gets a job, then the mother often has to stop taking classes to stay home and look after the children.

Unfortunately, opening a child care facility at this location would prove difficult in terms of finding a space, identifying financial resources and dealing with the general bureaucracy in the district. Child care is a problem for the entire community, with very few affordable facilities available, especially for those receiving public assistance. Considering that the school district has decreased funding by $300 million in each of the past two years, creating child care facilities, though important, is not a high priority.

An additional concern of faculty and administrators is the inability to "network" with counterparts outside the district. Because funds are tight, employees are only allowed to go out of state for conferences or meetings once every other year. The district sponsors staff development and in-service training that faculty are supposed to attend on their own time. The supervisors of LAUSD's adult education programs meet about once a month with coordinators of the district learning centers. One administrator mentioned the need to communicate with other local districts, and their frustration at not being able to do so as needed. The Coordinator is involved in the Adult Literacy Instructors Training network in California; many of the activities she undertakes for this group are on her own time. Many teachers are also involved in this network, through attendance in classes and as trainers.

Almost everyone at WALC spoke of a need to better recognize adult education in some way. The faculty and administrators spoke of it as the fastest growing segment in the education process, but it still often receives secondary status, even within LAUSD where "students" are often thought of as "children," not adults. Standardization of teacher training at the community-agency level might be needed in order for instructors to know and understand basic classroom techniques. The use of retired teachers to teach and train is also being contemplated within the district.

Additional use of information technology to train teachers, particularly about information technology and cultural awareness, would also be helpful. This would, of course, require software considerably in advance of any likely to be available to WALC in the foreseeable future given its budget constraints. Teachers need to explore cross-cultural training so that they are able to adequately respond to changes in the community. The ongoing changes in demographic composition of the communities will require paying more attention to which teachers are hired, what training they need, and how information technology might be used effectively. It also was suggested that the creation of a nationwide database on teachers and students would be helpful in terms of creating profiles of individuals, topics and methods. The Principal feels that generally "there is not enough computer technology in adult literacy programs."

The Principal also feels stronger industry-education links would benefit both communities.[19] This sentiment was echoed by the Coordinator, who sees partnerships with industries as extremely helpful, and would welcome more input from industry in the form of Advisory Boards. She feels schools could do a better job responding to industry and preparing students for a chance in the workplace if educators and administrators knew what industry needed. While recognizing a program like "Working Smart" -- where teachers actually go to the worksite to deliver adult literacy programs -- as useful, she sees a danger in schools providing skills that are simply worksite specific, and not truly in the interest of the student but more in that of the organization.

The faculty and administration note that private industry needs to take a strong look at adult education, in terms of funding, material and product development. With the increasing number of students in adult education programs, there is a need to create technology which will enhance the educational experience, and increase the number of students that can be served. Along with this, there needs to be a greater ability to network with other programs who have been successful in integrating technology into their programs. With limited funding availability, there is an increasing need for this type of activity. Administrators, in these times of economic constraint, can not be expected to purchase information technology that is brand new and untried, in the hope that it will be the a major asset to the program. The sunk costs and the risks of failure may be too great.

The need for increased funding was also stressed by everyone. Funding sources need to understand that education is a slow, costly, long term venture, requiring more than mere seed money. "Government decision makers need to come out to sites like Watts and really observe the extent of the problem, indicated one administrator. "They ought to involve the local teachers and administrators in the design of the long term goals for education. This is how innovations such as computer technology in the classroom are more likely to work."

Additional computer expertise might be helpful. Though both the PALS teacher and the computer literacy teacher have expanded the curriculum past the limited technological capabilities of the PALS program, additional software in other educational areas, such as math, would be helpful to the program. There are issues of coordination with other literacy programs and supporting social-service agencies. Currently, there is no channel for communicating experience back to system developers or even other potential users (e.g., the inadequacy of the PALS story).

This runs incredibly short of the "any time, any where, any way" potential of information technology. One of the advantages of computer-assisted instruction is that people keep at it for much longer periods than when they have to work on paper. Not surprisingly, their writing and other productions are often longer and better as a result.

[19] Part of the problem is that there simply is very little industry in Watts of *any* sort. The development of new sources of jobs in the area is a priority of Los Angeles' current rebuilding efforts.

With one-hour class periods, as is the case in the computer literacy class, it is hard to imagine that they are able to realize these learner gains. Developing an automated system to facilitate attendance and other administrative tasks would also be helpful for the program, especially for keeping track of GAIN participants, as would greater networking with other sites.

While computer technology has helped teachers provide a better service to students, teacher-student contact will continue to be the most effective learning medium. Everyone we spoke to indicated that the computers were helpful, but teachers are needed in order to develop and maintain an effective learning process. Information technology enhances rather than substitutes for the individual teacher. The role for computer technology at WALC -- at least in the next few years -- is as a teaching aid, helping to make classes more interesting, rather than as a focal point of the program.

The Watts Adult Learning Center, though limited by the PALS program, has developed an instructional environment that uses the system in a productive manner. Both teachers and students indicate that the technology, though useful and helpful in the classroom, could not stand alone. Without the teacher there to integrate the learning of all materials, the advantages of using the computer would be negligible. The use of the district software for additional drills, the augmentation of class work with other verbal and written work and the use of the computers for the computer literacy class, ensures that as much work as possible is being completed using the available tools.

Within the overall set of programs, WALC's use of technology must be rated as relatively limited and circumscribed. Their experience provides a reasonable illustration of both the advantages and limitations of tying a program tightly to a particular ILS, as many smaller and less sophisticated programs are often urged to do. WALC's experiences, frustrations, and ways of overcoming them need to be more widely shared and appreciated by those facing similar circumstances.

GLOSSARY

WALC:	Watts Adult Learning Center
LAUSD:	Los Angeles Unified School District
DPSS:	Los Angeles County Department of Social Services
GAIN:	Greater Avenues to Independence
PALS:	Principles of Alphabet Literacy

CREATIVE ACADEMIC ACHIEVEMENT PRO-SUCCESS (CAAP) LEARNING CENTER

620 S. Broadway
McAllen, Texas 78501

VIGNETTE

Martha is a 42 year-old woman who is currently enrolled at the CAAP Center. She emigrated to McAllen, Texas from Mexico more than 20 years ago. Throughout her adult life in the United States, Martha had only held lower-paying menial jobs, which required little or no English on her part. Recently widowed, the client found herself facing the responsibility of raising two children as a single parent. Realizing that her limited English proficiency and vocational skills have hindered her from getting the kind of income that her family now needs to survive, Martha has decided to go to school, to obtain precisely those skills.

As an older returning student, the traditional school setting seems too intimidating for her. A friend of the family, a former CAAP student, told her about the Center. As Martha has always liked to work in an office, the idea of obtaining computer and office skills in addition to learning English greatly appeal to her. She continues to hold a job during the day but attends night classes at CAAP. She is now in the process of preparing for the GED exam.

OVERALL DESCRIPTION

Organization Structure	Community Based Organization
Budget	
Operating Costs	$138,000
Type	Private - non profit (50%)
	Various state agencies (35%)
	Private donations and tuition (15%)
Staffing	
Teachers	Two
Technology specialists	One
Curricular Content	
GED	75%

ESL	20%
Elementary school tutoring	5%
Clients	
Total	67
Race	
Latino	98%
Other	2%
Sex	
Female	70%
Male	30%
Recruitment	
Social Services	statistics not available
Word of mouth	statistics not available
Retention/Evaluation	
Grade level improvement	95%
GED pass rate	14/180[1]
Technology	
Hardware	
Type	IBMs, Apple IIe[2]
Quantity	Fifteen
Software	Comprehensive Competencies Program

[1] 1991 statistic.

[2] Four out of eight IBMs are networked. Two Apple IIe's are used for data management, and five Apple IIe's are not at present in use.

CONTEXT

The Creative Academic Achievement Pro-Success Learning Center (CAAP) is a part of a complex of community organizations serving a largely disadvantaged population in semi-rural Texas. The area, made up of the cities of McAllen, Edinburg, Mission, Hidalgo, La Joya, and rural unincorporated communities, is located in the southeastern part of Texas, approximately ten miles from the border city of Reynosa, Mexico, along the Rio Grande River. With a population of 80,000, McAllen is approximately 85% Hispanic, and the primary language is Spanish.

McAllen is surrounded by an eight-mile radius of rural communities, called colonias. There are more than 240 colonias in the state of Texas. Colonias are large stretches of land which have been divided up into subdivisions; these subdivisions are sold very inexpensively (about $100 for down payment, $70 per month for 10 years), usually to first generation Hispanic immigrant families who are legal residents. After the purchase of the land the owners usually build the equivalent of a hut or shack. Eventually, after the land has been paid for, the goal for the families is to be able to afford to build their own home. This endeavor typically takes the colonias' residents ten years to accomplish.

For the most part, city and county maintenance services are not provided to the colonias. For example, the streets in these colonias are not paved by either of the two local government systems. Although electricity is available, there are no sewers or plumbing. One public telephone was recently installed in the area. Although phone lines are available, most families cannot afford the monthly expense of telephone services.

In the event the original owner decides to sell the land at a higher price, a different type of buyer will purchase it. Such buyers can usually afford to build their own homes immediately and the county will provide maintenance services (e.g., sewers). These communities are called subdivisions. The residents' socioeconomic status is the primary element differentiating subdivisions from colonias.

There is a strong sense of community in the colonias. The families get to know one another and provide mutual assistance when appropriate. Within the colonia, individuals are likely to barter for their needs. One woman managed to swap a water heater for a refrigerator. The families are accustomed to being inventive and ambitious in order to help make ends meets. They also tend to be first-generation immigrants from Mexico, working as migrant workers in the fields from April till October. Migrant workers and their families travel to different states, such as Idaho, Oregon, or California, depending on agricultural needs. Children of migrant workers thus leave school early and return to school late during the academic year. After the workers have enough money to build a home, they try to build it during their time off from the fields.

It is within this socioeconomic and cultural framework that CAAP seeks to provide its services.

PROGRAM DESCRIPTION

HISTORY AND MISSION

CAAP, and its related organizations, were created as a result of one individual's vision. The daughter of immigrant workers, the Director was born and raised for much of childhood in Mission, a town neighboring McAllen. She used her work experience in a law firm to organize and create an information and referral service. In 1984, while campaigning for the office of County Clerk, she recognized unmet needs in the Rio Grande Valley area. During her campaign, she had spent a large proportion of her time helping residents gain access to social and educational services. This experience helped her realize that the Hidalgo County community needed to know what was available to them in terms of resources. As such, she decided to start a community-based organization that would help fill some needs, at least in the domains of education and resource referral.

CAAP was first established in 1968 to fulfill the educational needs of the people in the area. During the initial stage, the Director investigated the types of educational programs and services available to adults in the Rio Grande Valley and throughout other parts of Texas. With the "expert advice of the Chairman of the Board"[3] the Director found two existing types of educational initiatives: (1) the adult education program (Adult Co-op), sponsored through the community colleges, and (2) volunteer programs (e.g., through the libraries).

With no desire to duplicate services, the Board determined which groups were not being adequately served through existing programs. These two adult basic education services, the Board noted, provided no programs to youths who were having trouble in school and were sent to correctional facilities, nor to the English as a Second Language (ESL) population. Within this niche, the Director believed, a steady group of students for the Center could be found.

The Board determined early that the use of computers should be made a part of CAAP's program. They felt that this was especially appealing because the agency could then (a) acquaint students with pre-employment skills (such as typing and computer usage), and (b) attract students who would like to continue their education in an environment that promotes learning through the use of technology (i.e., computers).

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[3] The "Board" in question is the governing Board of IRRA . See below for details on the set of organizational relationships involved.

Using its interpersonal network to get information on the various types of programs using computers, the Board decided to follow the model employed by the Creative Rapid Learning Center, located in Austin. The software package employed in the Austin Center, the Comprehensive Competencies Program (CCP) distributed and supported by U.S. BASICS Corp., offered a variety of programs that could be used to teach a diverse group of learners, including an ESL component. CCP could track the participants in terms of attendance and progress (giving specific grade level equivalents and test scores). In addition, the publisher, U.S. BASICS, was prepared to provide strong support for the program.[4]

The Creative Rapid Learning Center assisted CAAP in the beginning phase by lending their computers, providing technical assistance, and referring CAAP to various funding sources. The Meadows Foundation in Dallas donated $27,000. Other initial sponsors included the Charles Stewart Mott Foundation and Amnesty International. These private foundations were willing to fund CAAP despite its lack of a track record, because of the lack of resources in alternative education in the Lower Rio Grande Valley.

When CAAP was first created, the Director had already envisioned a high-tech educational center. She, however, had had no teaching or computer-related experience when the program began. Upon receiving the computers and software, she did not even know how to start the software program. She shared that she "said a prayer" for some help to get the computer started (and it did), stating that "the key command words, so elusive earlier, seemed to have jumped out of the manual." CAAP started with technological usage high on its priority list, and unlike many programs, did not go through a non-technological interim phase of operation.

The stated goal of CAAP is to "assist individuals interested in achieving a higher educational level by allowing them to attain the academic and functional competencies essential for any labor, educational market, or private enterprise." Specifically, CAAP offers its clients classes in GED preparation, in job readiness preparation, in improvement in reading, math, and writing abilities in preparation for entrance to a vocational school, high school diploma program, or college, ESL classes, and basic lessons on word processing, typing, computer operation, and office procedures.

ORGANIZATION AND STRUCTURE

As a community-based learning center, CAAP is part of a larger private, nonprofit organization called Information, Referrals, and Resource Assistance Inc. (IRRA),

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[4] The United States Basic Skills Investment Corporation (U.S. BASICS) is a private, non-profit organization, committed (in its own words) to "helping education service providers better achieve such overall program goals as reduced school dropout rates, early childhood development and family stabilization, skills training/re-training, job placement and upward mobility. U.S. BASICS facilitates transitions such as those from welfare to independence, incarceration to community living, school-to-work or post-secondary education."

whose goal is "to create a ladder to success and financial independence through the interaction and networking of multiple agencies."

In addition to CAAP, IRRA offers the following programs and services:

Information, Referrals, and Resource Assistance: assists individuals and families by referring them to agencies that address their specific needs, such as food, shelter, health care , or transportation. IRRA reportedly issues over 8,400 referrals annually. Inquiries are made regarding social security, housing, education, health, amnesty, employment, and other social services. Every week, about 15 to 20 people request multiple services either via telephone or by walking in. Participants in the agency's other programs also receive these services as needed.

Amnesty Hotline: provides information on the Immigration Reform and Control Act (IRCA) to community members.

League of United Latin American Citizens (LULAC) Ladies Council: awards scholarships to high school graduates on the bases of financial need, academic achievement, and community involvement. The amount of scholarships awarded in 1991 reached nearly $10,000.

LULAC Youth Councils: help provide the support, role modeling, and mentoring for young people to promote community involvement and services.

Children of the Sun (COTS): provides community development, education, and leadership training to 12 communities, nine of which are colonias and three of which are located in inner city housing projects. Both populations are 100% Hispanic.[5]

The promotion of individual growth and development in terms of self esteem and economic worth is accomplished through the organization of community councils in each colonia. The parents must agree to participate in a community council. The community must have approximately 100 children to begin. The parents must vote for a council, which consists of three to five members: a president, vice president, treasurer, and, if possible, two at-large representatives. Each community council then elects one delegate to the IRRA General Board, which meets once a month.

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[5] The COTS program began in 1988 in response to the need for empowerment and leadership within the Hispanic community. Currently, there are 850 children in COTS, sponsored by the Christian Children's Fund (CCF). In order to enroll a child in the program, COTS must receive the parents' permission for CCF to use the child's picture for fundraising. The children, dressed in their "Sunday best" in the photographs, do not represent an image of poverty, something that COTS does not wish to promote. Indeed, COTS attempts to champion self-development and entrepreneurial activities whenever possible.

The purposes of the councils are to empower the individuals and provide them leadership skills, to help them recognize that they can be resourceful and enterprising, that they do not have to powerless over poverty. Communicating to the families that, despite their lack of material resources, they possess a wealth of talent and knowledge that should be put to good use, is IRRA's basic approach.

There is a strong interconnection among the different components of IRRA Inc. For example, IRRA users may be referred to CAAP for their educational needs; parents of COTS participants may attend ESL classes; COTS participants may use tutorial services available at CAAP. All programs are based in the same building, a multi-purpose center for the clients.

RESOURCES

The Center is located on one of the major streets in downtown McAllen, surrounded by business establishments such as restaurants, retail stores, governmental agencies such as the., Texas Employment Commission). The Center itself includes four classrooms (capacity 10- 15 people), two laboratory rooms in which clients can use audiovisual instructional materials, a computer room, a library, a lounge, restrooms, a record storage space, and administrative offices.

The computer room has eight IBM PCs for student use. There are two printers. Audiovisual equipment is located throughout the Center, in the laboratory as well as in the classrooms. The walls are decorated with posters promoting education, success, and student achievement.[6] A front office shelf is stocked with various informational, referral pamphlets in English and Spanish.

IRRA currently employs nine people: the Director, one Program Director, three teachers, two COTS coordinators, one combination receptionist/manager of information systems (MIS), and one information resource person. All are full- time employees. The teachers report to the Program Director, who, along with all other employees, reports to the Director.

The teachers at CAAP have at least a bachelor's degree and are trained in the Comprehensive Competencies Program (CCP) curriculum by U.S. BASICS. Although computer experience is important, the Director prefers that her staff start with the interpersonal skills to relate well to students as persons. One teacher said that in assigning lessons, he tried to "go by [the student's] grade level and interest." The emphasis is thus not only on competency but also on student personal preferences with regard to their education.

The Director promotes an environment of commitment to the program. She wants her staff to be "willing to put forth an effort and donate some time....[We spend] one hour a

[6] E.g., posted against the wall in the hallway were names of students having passed the GED.

week to strategize a fund-raiser.It's just like one big happy family....[The teachers] have to know computers. I give my staff full reign to do whatever they want to be creative....[I want my staff] to have the desire to do more than a 8-to-5 day and go home and forget about it." Her teaching staff obviously share this commitment as their salaries are only about half of what is paid in the public school system. There is a strong indication that all employees at CAAP enjoy working there and reap many non-monetary rewards from student success.

Teachers are recruited by the Director through private and public personnel agencies (e.g., Texas Education Commission), first-time employee referrals through the Job Training Partnership Act agency, and English-language newspapers. All teachers have to pass the Tests of Adult Basic Education (TABE) battery; TABE serves as the placement test for students at the Center.

Though one teacher had originally been trained in science and another trained as an elementary teacher, they both prefer the CAAP environment to that of the public school system. All teaching staff indicated an openness to the use of technology to supplement their lesson plans. One teacher reported, "I'm always taping [videotapes] for classroom instruction."

Throughout last year, four teachers had left CAAP. Two went back to school for degrees; one went back to the public school system (where the pay is more); and one resigned due to health reasons. The Director expects the turnover rate to be high due to the low pay and high commitment required by the work at the Center.

The program is not free to most students; students are required to pay for the lessons, even if it means paying from the allowance they receive from public assistance. The Director feels strongly that the poverty mindset can be overcome if people take responsibility for themselves, which includes paying to obtain a needed education. Participants pay any amount from $.62 to $3.00 per instructional hour. Most people take 4 classes/5 days at a cost of $12.50 per week or $50.00 per month. There is a $25.00 registration fee for processing and supplies. Participants must have at least $5.00 to start his/her enrollment in the program. Said one CAAP representative, "We don't believe in giving anything away. If an individual is in dire needs...[we] work out a scholarship, work study, [or create] a job at the Center.")

CAAP provides and coordinates its services with a number of social service agencies in the area, including:

Texas Youth Commission (TYC). Youth who have been recommended for alternative education (other than regular high school) are referred to CAAP by TYC, which pays the students to attend school.

Department of Human Services (DHS). For those on public assistance, the CAAP program is one to which social workers can send clients who are

mandated by the government to either attend school or be employed. These individuals receive a maximum transportation allowance of $50.00, which they use to pay for school.

U.S. Department of Housing and Urban Development (HUD). Individuals who receive housing assistance may be required to attend school, as with DHS clients. Social workers can refer students to CAAP.

Jobs Training Partnership Act/Private Industry Council (JTPA/PIC): CAAP's work with JTPA is mostly through the Summer Youth Employment and Training Program as well as through the Title IIA-8% Program. CAAP provides classroom training and pre-employment training to participants in the Summer Youth Program. Through the 8% Program, which targets youth and hard-to-serve adults, CAAP provides remedial education such as ABE, ESL, and GED.

JTPA, along with other government agencies (e.g., HUD), is currently being mandated to arrange ABE services to adults receiving public assistance. According to a representative at JTPA, community-based organizations such as CAAP are:

> "at a disadvantage [in providing ABE services] because they lack permanent funding. They survive at the whims of private foundations and philanthropic organizations. Therefore, organizations such as JTPA are experimenting with models that provide these services themselves [rather than relying on community organizations]."

The JTPA administrator did indicate that there is "built-in legislation" mandating that his organization work with community groups, although he sees such groups as more of a "watchdog of bureaucracies." In the future, he does see organizations, such as JTPA, "moving toward more involvement with community organizations." He views it "as a relationship that has not been fine tuned."

Obtaining funding and coordinating with other service providers in the Valley have been a problem for CAAP. Very often, government funds are only available to other government agencies. Additionally, some agencies, such as JTPA, are creating their own adult education programs. CAAP's Director feels that much of this activity only results in a duplication of services. There seems to be no strong voice or mandate for provision of a set of continuous services, building on rather than duplicating one another.

CLIENTS

In the most recent quarterly report on Comprehensive Competencies Program (CCP) participants, the number of clients served was 52. Close to 70% of those were female; the overwhelming majority of the clientele was Hispanic (50 out of 52). Adult learners ages 22 to 44 made up more than half of the total client population. Most of the

participants had dropped out from school; the average grade equivalent completed by all was 7.5.

Currently, 67 students are enrolled at CAAP, 98% of whom are Hispanic. Many of them have limited English capabilities, although they were born or have lived in the United States for quite some time. It is also not unusual for CAAP to have students who commute from Reynosa, Mexico to McAllen to study English. These students have a border crossing card that enables them to stay in the U.S. for 72 hours. Although the border is only 10 minutes away by automobile, it may take as long as 30 to 45 minutes to cross due to the Mexican immigration checkpoints. There is a bus servicing the Reynosa-McAllen route. Many of the clients from Mexico recognize the opportunities associated with being bilingual. They talk of the free trade discussions between Mexico and the United States and are eager to be able to take advantage of any business opportunities that may arise as a result of these negotiations.

CAAP also serves a number of "Golden Years" participants; these are senior citizens from the local Senior Citizen Center who attend an ESL class for two hours every Wednesday. The senior center provides transportation to and from the agency. The seniors range in age from 67-78 and know very little English. Most have lived in the U.S. for at least 10 years. Due to health reasons, their attendance is inconsistent. The Director said she wanted the Center to "serve all ages."

The turnover rate is quite high, but almost 100% of CAAP students stay at least six months. Within the six-month period, most are able to reach the immediate goal of raising their school grade equivalency at least one level. In 1991, 14 out 180 participants received their GED's. It is difficult for those who start at very low levels to stay the year to year-and-one-half needed to obtain the GED. The goal of the Center, therefore, is to make sure that everyone who leaves at least has the skills to functional a day-to-day basis.

People who persist in the program tend to be more motivated; those who are required to attend are more resentful. The TYC students stay about 4 to 6 months on the average; these are kids who attended "a school system that cannot and will not work delinquent youths," according to the Director. One teacher indicated that it is difficult for 16 year olds to handle the limited structure and environment; they are usually more accustomed to a traditional school setting. Other reasons for attrition include barriers in transportation and child care. In addition, due to economic necessity such as emergency financial needs, general lack of funds, or the migrant nature of employment, students also drop out.

In general, individuals attending CAAP want a better future for themselves and their families. When asked how they came to enroll in the program, some responses from the participants were:

> "because I want to get a job...I like to study computers in the school and office but I need English". "It is necessary to learn English". "I want to hold a conversation". "I want to understand people like you [referring to the interviewer]". "I am in school for my kids...My mother said if you don't study, you'll end up cleaning house". "My friend told me this is a good school. I need to speak English because I work in Monterey in Mexico". "I think I need so much English to get my GED. It is more difficult to write". "The other schools didn't have computers". "A lot of people stay home. They need to study a lot. We need more of this school. We can work as fast as we want". "Because I like the computers".

One student, a man from Monterey, Mexico who worked in advertisement for a newspaper there indicated that he knew his "opportunities to work and make more money would increase" with his ability to speak English.

Most of the students find out about the Center through word of mouth. CAAP's other recruitment methods include public service announcements, the use of local talk shows (both radio and television), flyers, referrals from social and other service agencies.

INSTRUCTION

Approach

Philosophically, the Center tries to tackle internal barriers to progress, especially in this mostly female client population. The staff and faculty try to boost the self esteem of the women, so that the students believe they are "viable and intelligent; that poverty is a state of mind." Many students do not feel comfortable in a school environment; many have not been in school for years (mandatory education in Mexico is only to the sixth grade). They think their command of English is less than it really is.

The challenge for the staff is to cultivate student confidence in addition to instructional content. CAAP uses a variety of pedagogical techniques to help its clients achieve their goals. Although technology use is a priority at CAAP, the Center staff also pays attention to "internal emotional barriers" people have with regard to how they view themselves. One staff member said,

> "How you feel about yourself won't allow you to look anyone in the eye....[We try] to reinforce what they see, that we're all equal...[Their state of mind] keeps them in a state of poverty. There are so many enterprising adults out there, it pains me [to see them remain impoverished]."

The staff is to get to know the students as people. The teacher is responsible for matching the curriculum with the student's goal, be it college preparation, employment preparation, or others. CAAP also believes in treating its students with respect.

Students who are forced to attend school are often resentful. The staff and faculty try to let these students relax and not fight the students' anger. They try to get to know "what makes [the students] happy, what makes them sad." One staff member explained,

> We go a step further. We visit with the students when they come in, ask them why and what they plan to do in the future, how long they want to spend on the program...so that in outreach we can find the work setup they're looking for....[We] take them on trips... open their minds....People haven't been trained, they haven't been exposed. The government is burdened with dependent people. The staff brings out what it is that's bothering them, what makes them happy.... We believe in using our resources...using our students... [for example] if so-and-so needs some help in self esteem, [we would ask another student], "Can you help and talk to her?"

Tools and Techniques

The program at CAAP is self-paced, open-entry/open-exit. All participants are required to take a TABE battery, which consists of seven sub-tests in reading, English, and mathematics. Once a participants' level of competency is determined, he/she receives a 12-hour orientation in which counseling and instructions regarding lessons assignments, procedures, facilities and equipment are discussed. The participants will also receive a student orientation handbook, which discusses classroom rules and keys to success (such as regular attendance; proper behavior and dress; no weapons, drugs, or alcohol).

Classes are offered in three sessions: morning (8:30 am-12:30 pm), afternoon (1:30 pm-5:30 pm), and evening (6:30 pm-10:30 pm). Within each of these four-hour blocks, students may work independently on workbook materials, which give instant feedback (that is, correct answers are provided), engage in one-one-one instruction and tutoring, watch videotapes, listen to audio tapes, or use the computers.[7] Staff members indicated that they "are firm believers in anything past paper-and-pencil," and that "computers do enhance the program."

All students, GED and ESL, spend approximately 45 minutes to one hour per day on the computer. Students work individually on the computers; the computer lab instructor is available to answer students' questions with regard to computer usage and/or the lessons themselves. Supplementary book materials are also available in all subjects (hard copy).

All three sessions are taught by three teachers; one is responsible for ESL, another for coordinating academic subjects, and another for the computer lab. The teachers meet

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[7] The lecture format is also employed at CAAP; lectures are usually short, however, lasting about half an hour at the most.

weekly with the Program Director to discuss the coordination of their work and the progress of their students.

As mentioned previously, the Center uses the Comprehensive Competencies Program (CCP), installed on a Novell network. The CCP organizational matrix consists of two components; (1) Academic Competencies component, which stresses basic academic skills, and (2) Functional Competencies component , which stresses basic coping skills.

Within the Academic Competencies component, there are four levels (from primary to comprehensive), three tiers (basic, intermediate, advanced), and three to five strands. Three strands are built in within the basic academic competencies tier: (1) basic mathematics (covering addition, subtraction, multiplication, and division, in levels 1 to 4, respectively), (2) reading fundamentals, and (3) academic ESL. Four strands make up the intermediate tier: (1) intermediate mathematics, (2) developmental reading (ranging from grade 5 reading to grade 8 reading, depending on the level), (3) specific language skills, and (4) integrated language skills. The advanced tier consists of five strands: (1) advanced mathematics, (2) reading and humanities, (3) writing, (4) social studies, and (5) science.

The Functional Competencies component is organized in a similar fashion to its academic counterpart. This component of the CCP covers lessons from career choice to job search to comparison shopping to medical care, transportation, citizenship, and community services.

Within each of the four levels of competencies are three major units, each of which consists of individual lessons revolving one particular theme. Every couple of days every week, participants are to take unit tests, which cover the two to nine lessons making up the unit. Level tests, covering two to eight units, are to be taken every other week or twice a month.

In the academic component, one can embark on the intermediate tier by achieving a fourth grade level, and the advanced tier by achieving a seventh grade level. An eighty percent correction rate is considered passing for all unit and level tests, with the exception of the intermediate functional component, which requires only a 75% passing score.

Currently, CAAP is "the only game in town": no other centers in the area are using computers as part of their training and education. One staff member indicated that the computers "are an attraction; no one else in adult education in the area uses computers. Therefore, many people come to get the computer experience." One student mentioned that she specifically came to CAAP for opportunities to learn through the computers. The following quotes were recorded when the subject of computer availability was brought up: "I like it because it opens your mind...helps you a lot...comprehension...grammar"; "The computer helps me because in grammar [sic]"; " I like to work by myself".

Students are administered a "locator test" which will indicate the level of the TABE test to administer. When this is determined, the appropriate TABE test is given. The scoring of the test indicates not only grade levels in reading, math, language to determine basic literacy, but also information on the student's levels in math, literature, writing, social studies, and science as they relate to the GED. These tests, and all subsequent tests, are part of the CCP protocol used at the school. The tests' answers are recorded on machine-readable forms (i.e., Scantrons) and a scanner is used to score them. If the student's information (such as name, address, social security number, etc.) has been entered in the computer system, he or she is assigned a code number to be used for all future assignments, tests, and information update.[8]

Provided with the test scores are the appropriate lessons for the students based on the scores. This information is kept on a hard copy and in the computer system. The teachers only get a copy of the student's average test scores; they have the same information that the computer will give them because all CCP materials are coordinated. Teachers often personalize the lessons based on the needs and goals of the students. For example, students who do have much confidence in their English skills often place higher than they expected. They often desire to attend an ESL rather than GED class, although they test fairly high. Thus, some accommodations are required.

The students are allowed to enroll in the class with which they feel most comfortable, usually ESL. Quickly they gain confidence and realize that they know much more than they expected; as a result, they ask to go to the next step. This practice reflects the basic philosophy of the school, i.e., not to push the students but to allow them to overcome internal barrier by first gaining the self confidence.

The Center also uses audio-visual technological assistance. With the Language Master tapes, students can listen to the correct pronunciation and repeat the sentences individually. The InstaVox is a voice interactive program; the words or sentences are projected onto the computer screen, the student gets to hear the correct pronunciation and, in addition, to repeat and record his/her practice attempts.

Evaluation Procedures

To monitor their progress, all participants are to take a competency test every 100 hours enrolled. The pre-test and post-test grade equivalents are recorded in the CCP Participant Record. In addition to demographics, the CCP Participant Record also contains information on the participant's employment background (including barriers to employment, such as limited English proficiency, migrant or farm worker, disability, past offender, displaced homemaker, and lack of U.S. citizenship) and follow-up information obtained after the students leave the Center.

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[8] If the data have not yet been input into the computer, the test information is added at a later time by the MIS.

CAAP stresses the importance of a close monitoring and feedback system. Participants are to record their own attendance.[9] In addition, participants also have the chance to give their input regarding the helpfulness of a particular CCP lesson by rating its quality on a CCP feedback form, which in turn will help CCP plan its program. The database program allows room for comments, usually this includes some of the specific goals of the students. This information is on record and is shared with the teacher.

The database also keeps track of attendance and all subsequent test scores. Any improvement the student has made (i.e., from one grade level to another) can be recorded. Additional follow-ups are done so that the Center has some idea of what students do when they exit (e.g., are they attending another school or working? If working, what is their pay?) Such information will be reported to various funding sources. The exit/follow-up reports also indicate the grade level of the student when entering and the grade level when exiting. If a student does not inform the teacher or the MIS specialist that he/she is exiting, the score for the last test given is used as the exit score. Progress and follow-up reports provide data for ongoing program evaluation.

ISSUES IN TECHNOLOGY USE

According to one CAAP staff member, the use of technology is "100% better than having a teacher standing in front of the classroom" to perform mechanical drills. It frees the instructor's time and energy so that he/she can attend more to the students. The tools allow the individual student to work at his/her own pace, increase the comfort level (i.e., the embarrassment resulted from trying something new in a traditional classroom setting is spared), and augment the individual's confidence.

One teacher observed that "the younger students like it [the computer] more. I see them use it as recreational." Interestingly, the instructors tend to see technology as supplemental to the program; by contrast, the administration views the computers as integral, a *sine qua non* of CAAP marketing.

Students' reactions with regard to technology are mixed. One student reported a positive response, indicating that technology use enables her "to work by [her]self." Another student stated that the computers "help [him] a lot with grammar." However, one former student commented that she was able "to get through quicker" without using the computer.

Because at least 80% of the participants had no prior computer exposure or usage, some initial training and psychological preparation (e.g., overcoming intimidation by machines) are necessary. Once they become familiar with the process, however, their

[9] Teachers also monitor attendance and distribute progress reports monthly.

utilization rate increases. CAAP reported "no problem" with technological use. Their main task on the technological end is to take preventive steps to keep the machines from breaking down. CAAP maintains backup software.

Video technology is not widely used. Though one teacher indicated that he has tried to make videos part of the class in a number of different ways and students have not responded positively, it seems that video can still be a part of the program. Perhaps it might be useful to use the video technology in the CAAP orientation ; also, it might be used to provide initial training on how to use the computers.

There are no maintenance contracts; one staff member helps with maintenance, as does Texas BASICS (a statewide subdivision of the national organization, U.S. BASICS). Repair needs are infrequent. The hardware and software products currently in use appear to be updated, state-of-the-arts; the program's successful operation can be partially attributed to this factor.

CAAP is sufficiently pleased with the results generated from CCP usage that the Center plans to continue with it. CAAP keeps up with new development in technology by participating in U.S. BASICS and Texas BASICS, and in a local computer club with 20 members who meet monthly to discuss computer-usage problems. CAAP would like to invest more on computers and InstaVox machines if it becomes financially feasible.

GENERAL ISSUES

Besides a commitment to utilize the most advanced and effective information technology, some strategies contributing to the Center's success include working with the student as an individual and his/her family unit, addressing psychological and social needs. This means learning about the student as a person (with dreams, hopes, and fears), and serving as a resource agent (helping the students get their basic needs met through referrals). The Center also coordinates with educational and social services agencies to observe what is available, and to avoid duplicating services).

The agency has had success in forming cooperative arrangements with other community-based adult education programs in the state. The initial modeling after the Austin-based Creative Rapid Learning Center in terms of technology was not only instrumental during the inception of the project, but has also remained part of an informal network that is facilitated by Texas BASICS. The group meets quarterly; they are set up to provide technical assistance to users of CCP. They also apply for funds from foundations and state agencies for adult literacy programs, conduct in- service and staff development workshops. Additional, Texas BASICS is a lobbying group. Recently, the organization has been instrumental in getting the Texas Educational Commission to release an RFP to get community organizations involved in the adult education. Previously, this was only the domain of the public school system.

The increase of collaborative efforts between diverse community-based agencies and governments as well as the emphasis on the individual and his/her family system are the two most important lessons we learned from CAAP.

To a large extent, the Center's ability to expand is somewhat limited by the lack of cooperation of other government agencies in terms of providing a cooperative atmosphere in which to conduct business. Expanding the tutoring service may be one avenue which could expand the program and pay for itself. Since the materials are there (both written and software), there is no need why the Center should not be used by as many persons as possible.

Working with other government and community-based agencies or private foundations to find a means to pay for transportation to and from the Center would certainly help increase the participation of a great many people. The only public transportation system only provides services to Mexico and to Pan-Am University, a college approximately 15 miles from the CAAP Center. Getting around in this rural area and its surrounding communities is very difficult unless one has a car, bike, or a good pair of feet. As described by a CAAP staff member, transportation is a "profound barrier." Said one teacher,

> We have an older student, someone who's past 60, who tries to come [to the Center], walking three to four miles in this very hot weather....I saw this little old lady, and I mean old, pushing a shopping cart for grocery. She may have pushed three miles the poor old cart, in her tennis shoes...If we have the bus, she could at least two times [a week to the Center]. She just can't get here! It killed me.

Child care is also a major issue. Due to cultural influences, the majority of the clients do not feel particularly comfortable leaving their children with someone else. The week we visited the site was Spring break for the school children, and students, who are also parents, took off from school to be with their children. Perhaps through providing child care services, the Center may be able to develop the entrepreneurial skills of the clients.

Creating a child care facility at the current building, training clients to run the business and getting the clients' children themselves may provide for an interesting program. It might be able to be funded through a private foundation as a demonstration or pilot project. The facility, because it would be run by people in the community, with their children as clients, could alleviate some of the concerns about leaving the children with strangers. It also could provide an opportunity for the students to learn how to run a business.

The Director indicated that she would like to see more entrepreneurial activities in all her programs. She would like to see students start to put together small businesses that could be run out of the home. The need for this is strong in order to eliminate the

feeling of poverty that seems to overwhelming influence the state of mind of many in McAllen. She also has just recently became aware of a growing population which might need some ESL classes.

At the organizational level, currently the agency feels like a "bastard child":

> "We do so much for so little. It costs Adult Basic Coop [public education] $2,800 per student and it costs CAAP $715 per student. We don't want their $2,800, just recognition for what we do for so much less, a more personalized process, [providing] individual attention....Congress needs to mandate that big agencies be held accountable and recognize that community-based organizations are another form of business ....Congress should mandate that agencies should not get money unless they coordinate their services. Start with the community organizations because they are in touch with the family and deal with basic needs of ensuring food and shelter...then agencies that can boost self esteem can become involved, such as pre-employment and vocational education."

In general, CAAP and all the other programs offered by IRRA are providing a greatly needed service to a growing community. The technology that is available there certainly brings something of value to this program. Though technology is important, it is not the glue that hold the program together, however. The main ingredient is by far the staff and the Director, especially. It was refreshing to see that though a relative small town, the people of McAllen seem to think big and look toward the future, both in terms of economics and the personal well-being of all the participants.

Overall, McAllen provides an excellent illustration of creative and effective of an ILS. The program appears to meet the needs of the agency, and a creative and effective relationship has developed between them; CCP, at least in this instance, appears to be doing just what an effective ILS should do. The case also illustrates some of the difficulties with reaching a rural and non-English-speaking population; only a combination of services of which literacy is only a part, albeit a key part, can hope to reach through the poverty syndrome that touches all parts of lives in such communities.

GLOSSARY

CAAP: Creative Academic Achievement Pro-Success Learning Center

IRRA: Information Referrals and Resource Assistance, Inc.

CCP: Comprehensive Competencies Program

CORRECTIONAL EDUCATIONAL DIVISION
LOS ANGELES COUNTY JAIL SYSTEM
(HACIENDA-LA PUENTE UNIFIED SCHOOL DISTRICT)

15377 E. Proctor Ave.
City of Industry, CA 91745

VIGNETTE

"Jack" is an attractive and articulate young Oriental who finds himself in a maximum security wing of one of LA County Jail's older and grimmer branches. A former paralegal, he stands accused of embezzlement. Looking snazzy in his shiny orange jail-issue jumpsuit, Jack now works under the direction of a teacher in the jail's school, helping other prisoners use computer- assisted learning systems, tracking their participation in educational programs, and scoring their placement tests. This, he says, is quite a comedown. "If San Quentin is the Holiday Inn of the prison system, this is the Motel Six." Nonetheless, working in the jail's school helps pass the long hours he would otherwise spend lying on his bed or watching TV in the recreation room of his dorm. He thinks a lot about what he will do if he can put this all behind him. Among "other career possibilities," he has considered the ministry, but his wife fears that it would "interfere with their lifestyle". A key concern in his plans is to "avoid temptation in the future."

OVERALL DESCRIPTION

Administrative Control	School District
Organization Structure	Prison
Budget	
Amount	8 - 10 million
Type	
Sheriff	4 million
State	6 million
Staffing	
Teachers	150
Technology Specialists	11

Curricular Content[1]	
GED	statistics not available
ESL	statistics not available
Life Skills	statistics not available
Vocational	statistics not available
Clients	
Total	5,000 - 6000 per day
Race	
African-American	30%
Latino	40%
White	25%
Other	5%
Age Range	18+
Recruitment	
Word of mouth	statistics not available
Announcements	statistics not available
Retention/Evaluation	374 GEDs 2000 Vocational Certificates
Technology	
Hardware	
Type	Macintosh (a few IBM PCs are available)
Quantity	180 over 12 sites
Other	Video tapes and discs, VCRs, CD ROMs
Software	Developed much of their own using Hypercard and Authorware

[1]Since prisoners are moved often from facility to facility, reliable client statistics are not available.

CONTEXT

The Men's Central Jail in downtown Los Angeles is often somewhat ironically proclaimed to be "the largest jail in the Free World". The LA county jail system is temporary home to over 23,000 men and women at any given time. Over the course of a year, more than 250,000 people pass through the system, some back to the streets, others on to state prison facilities. Most inmates are awaiting trial, sentencing, or transfer; some are serving sentences of up to a year for relatively minor offenses. Large black-and-white buses with barred windows and "Sheriff's Department" lettered in gold on their sides are a common sight on LA freeways, transporting prisoners back and forth between the courts and the eleven separate jail facilities located in Los Angeles County. (The system serves both the city of Los Angeles and the myriad smaller municipalities and unincorporated areas in this large -- several hundred square miles -- and diverse county.)

Not only is the LA County jail system larger than most state prison systems; its short-term and continually-shifting population makes managing it extremely difficult. It is operated by the Los Angeles County Sheriff, an elected official whose Department of deputies and civilians is funded by the County Board of Supervisors.[2]

The jail system's facilities are, like the County itself, highly diverse. All incoming male prisoners are initially booked in Men's Central Jail, a 6,000 prisoner facility that fits the traditional stereotype of a jail. The Sybil Brand Institute, the principal women's facility, is a much more open and less forbidding institution.[3] The Biscailuz Center, a former military training camp, is older and not as good. Four facilities share common space in the North County, including the Pitchess Honor Rancho, a minimum-security camp and the North County Correctional Facility, a new state-of-the-art maximum security building.[4]

Education has been a major program of the LA County jail system since before World War II, but the current program dates from the early 1970's. Today, the Sheriff's Department has a Correctional Education Division (CED) that contracts with the Hacienda-La Puente Unified School District, in the eastern part of the county, to provide educational programs in all eleven jail facilities.

CED answers to two superiors -- the school district and the Sheriff. On the one hand, CED employees work for the school district to improve inmates' knowledge

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[2] The Sheriff's Department also provides police services to unincorporated areas of the county and to several cities under contract.

[3] Sybil Brand in a longtime community mover and activist who was principally responsible for persuading the County Supervisors to establish a separate women's facility.

[4] We were able to visit two of these facilities, in addition to the central administration and the Media Services Lab.

and skills. On the other hand, they indirectly work for the Sheriff, whose primary concerns are security and control. The Sheriff's needs usually take priority; as one administrator explained, CED does business "in someone else's house -- the Sheriff's house." Rules and regulations set by the Sheriff must be followed by all school staff, including rules about "lock downs" that restrict the movements of both prisoner students and their teachers. In practice, however, the needs of the school district are often congruent with the Sheriff's goals. By providing constructive ways to fill inmates' time, education helps custodial staff to maintain control over inmates. As one inmate told us, especially for unsentenced inmates (who cannot be assigned to work details) "there are not many alternatives [to educational programs] other than hanging out in the dorms, watching TV, sleeping or talking about drugs". Given court overcrowding and delays, many inmates remain unsentenced for as long as six months or longer. Thus, anything that helps get people through this period without going through the roof is likely to be welcomed by the Sheriff's staff.

As might be expected, relationships between the CED and the Sheriff's department are critical to making the educational program a success. At the highest management levels, the relationships are excellent. The Sheriff, his staff, and the administrators in the jails are extremely supportive of correctional education; they continually demand expansion of educational programs and hold in high regard the efforts of CED personnel to promote total inmate welfare. At lower levels, relationships are somewhat more problematic. The custodial staff of the jails consists largely of deputies on their first assignment out of the Sheriff's Academy. Highly enthusiastic, full of the "good guys versus bad guys" mentality, these young deputies have been socialized to treat inmates confrontationally, and they lack the seasoning that comes with more experience. From their point of view, providing school for prisoners often looks like "coddling;" they see school as a privilege that prisoners do not deserve. This attitude led to some problems when technology was first introduced into correctional educational programs, and, while most deputies soon learn to value inmate education, they are quickly rotated to other assignments and replaced with raw recruits who must learn to value correctional education.

In short, despite its high level support, CED has a task that is challenging, to say the least. It has clients who (all things considered) would rather be somewhere else, and who suffer from many problems that education alone cannot address. It must work in harmony with custodial staff who do not always appreciate what it is trying to do. And it operates in a day-to-day environment that is largely cheerless at best and downright demoralizing at worst. In view of these circumstances, the accomplishments of CED personnel, their dedication and the creativity, are particularly worthy of note.

PROGRAM DESCRIPTION

HISTORY AND MISSION

Education in the jail system goes back many years. By the late 1960's, the Sheriff had contracts with three separate school systems to operate school programs in different jails. The Department was less than satisfied with these programs, and in spring 1972, as a result of a personal contact, the Department invited the Adult Division of the Hacienda-La Puente School District to establish a pilot educational program at the Sybil Brand Institute for Women. This initial program was soon expanded to three other sites by fall 1972 -- The Hall of Justice jail, the Biscailuz Center. and the Men's Central Jail. The Department was so pleased with HLPUSD's programs that, in 1976, the district's bid to provide educational services to all of the Los Angeles County jails was accepted, and the Correctional Education Division was established. The school district affiliation means that all CED instructors are credentialed -- not the case in all correctional education programs. This undoubtedly contributes to the high degree of professionalism in the program.

The initial programs employed conventional adult education teaching techniques, and consisted of a mix of academic offerings (largely oriented toward GED preparation and basic literacy) and vocational subjects. The first teaching facilities were carved out of existing spaces not designed to accommodate them; for example, the Men's Central Jail school was installed in a converted mess hall.

Technology entered the program in 1981 when the head of CED hired an Administrator of Media Services to write a grant proposal to bring computers into the program. Along with his considerable experience in instructional technology and a knack for writing grants, the Administrator brought with him a strong belief in the value of video-based instruction, considering it one of the "major culture building tools in our society." By virtue of its grant writing success, the Media Services program within CED was able to capitalize on what was then a relatively munificent funding environment for adult and correctional education. Today, it is an eight-person unit, with five FTE video production specialists, one computer courseware developer, and one network specialist, in addition to the Director.[5] Over the years, the program has developed a large library of educational videos, including the award-winning "What Mother Takes, Baby Gets" (a video on drugs and parenting), and has become nationally known for its innovative computer-based courseware.

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[5] The program supports itself in part by producing videos and courseware under contract for an assortment of non-profit agencies, not all in corrections.

Organization and Structure

CED has its administrative offices in the Sheriff's Department headquarters in the Hall of Justice in downtown Los Angeles, a grand but decaying building dating from 1925. HLPUSD's offices are many miles to the east. Under the Director of CED are five Site Administrators, each responsible for two to four jails, and administrators for Vocational Programs, Academics, Library Programs, and Media Services. Overlaying the formal structure is a matrix arrangement in which each Site Administrator is also responsible for particular areas of programming and course development.

CED provides educational services to inmates at eleven jail sites. Over 90 sections of 40 different courses are offered each year across the sites. Among the offerings, which vary from site to site, are standard adult education courses familiar from many other sites: GED preparation, coursework for the high school diploma, ESL, employability skills, Life Skills, vocational training, and job placement. Some offerings unique to the corrections environment include rehabilitation counseling, child abuse and parenting programs, and substance abuse and AIDS education classes.[6]

A special initiative under the Job Training Partnership Act (JTPA) has been set up for carefully-selected inmates. The JTPA program, like those elsewhere, is aimed at expanding pre-work skills, including job search and job development capabilities. A life skills program called REACH (Rebuilding, Educating, Awareness, Counseling, Hope) treats a broad set of life issues, and is offered as a 90-day, three-phase program in several facilities. Under development is a Victim Awareness program aimed at increasing the sensitivity of inmates to those they have harmed. These special programs provide examples of CED's responsiveness to the needs of its clientele. CED also operates library facilities in most jails.

Resources

Funding for CED is somewhere between $10 and $12 million annually, large portions of which come from the LA County Inmate Welfare budget, from state ABE (Adult Basic Education) programs, and from state appropriations for incarcerated adult education. Additionally, the program receives donations and grants from foundations and other public entities for specific programs, such as the creation of the Media Services Laboratory. JTPA funds from the county support the Media Services Lab directly. One reason the Hacienda-La Puente School District supports the program as strongly as it does is that, as an administrator told us, "the program pays for itself."

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[6] Lest readers forget that CED is not dealing with a conventional population of adult learners, it is worth noting that one of the teachers recounted being asked during one AIDS education program whether it is "possible to contract the HIV virus by drinking another person's blood?"

Classrooms and other physical facilities vary widely across the different sites. CED does not have much choice in terms of the size or quality of space; the Sheriff's Department works with CED to allocate the maximum possible space in view of the perennial shortage. As a result, some older locations have to cope with a variety of potential hazards to computer and video equipment. Recent jail construction has included specially designed educational facilities as part of the basic design -- another testimony to the increasing value placed on the program by the Sheriff's Department, which has consulted with the CED in designing the new facilities.

Until recently, jails were designed with all inmate services (food, education, and recreation) in central locations to which the inmates traveled at specified times. For example, in the older facility that we visited, the school was housed in three rooms: 1) a classroom with desks in rows down the middle and lining the walls and a counter where inmates can get information about the school, 2) a computer lab, and 3) a room primarily used for the teachers' office and for testing. The second, newer facility, had all inmate services together on one hallway; in addition to the school, there was also an art and print shop and a library. The classroom was one big room with about 20 computers of various types lining the wall and with tables in the middle, and plenty of open space.

The newest jail facilities are being designed under a "direct supervision" philosophy to limit inmate movement through the use of self-contained residential modules where the inmates remain and the services travel to them. Thus, instead of one central school location each module must have its own school site. As jails are built with this new design concept, CED will have to adjust the means by which instruction, especially technology-assisted instruction, is provided. For instance, much of the technology in use today is portable only with difficulty, and it may be too expensive to install the technology permanently in every residential module.

Currently, there are some 150 instructors reporting to the CED site administrators. All are state-accredited and work full-time; many have adult education credentials. Some of the teachers who conduct the pre-apprenticeship training programs for particular crafts are members of the relevant craft unions. Instructors' pay is negotiated by the bargaining unit for all adult teachers. While some instructors specialize in a particular area, such as vocational education, others work in more than one area, depending on their credentials. For example, one teacher we spoke with taught high school diploma courses and did career counseling.

There are few differences between the instructors who teach in the jails and the other adult education personnel employed by HLPUSD. Recruitment procedures are the same; CED instructors may or may not live near jail locations. It is not considered necessary that the instructors have previous experience in adult education or the use of technology in the classroom; personal qualities that enable

instructors to work effectively in a custodial environment are emphasized in hiring decisions.

In addition to the instructors, each site has a variable number of "clerks", inmate trusties who are assigned to CED as a work placement. Some of these (like the one described in the opening vignette) are highly qualified and useful; others are less so. In any case, their short and unpredictable tenure creates some problems for the CED staff, because the program desperately needs their services.

CED works hard to keep instructors skilled and motivated. In-service training takes place every couple of months, and there is an annual staff retreat. Teachers and counselors meet regularly both formally and informally to discuss their ideas and concerns and share them with administrators. Additionally, many teachers are involved in developing new courses, in developing educational videos and software, and in evaluating vendor software offerings. A major current emphasis of the Media Services Laboratory is on developing instructional support for training teachers in instructional techniques and in the use of instructional technology.

Clients

As noted, the jail population is large and constantly changing; the average stay of an inmate in the system is between 30 and 45 days, but the variation is extremely wide and wholly unpredictable by either the staff or the inmates themselves. A high proportion of inmates are repeaters. Most have about a 4th or 5th grade reading level; even those who have completed high school are seldom above the 9th or 10th grade level. They tend to be substance abusers and to have been abused as children. In fact, about 5% are estimated to be at least third-generation inmates. Of the total jail population, about 40% are Hispanic, 30% African-American and 25% white. An increasing number of inmates are female.[7]

Over the course of a year, over 267,000 people receive educational services from CED. About 5,000 to 6,000 inmates are served in classes on any given day. (Attendance changes daily due to court calls, visitation, and lock downs, and much instruction is done by individual study.) At one site we visited, 150 students were enrolled; about 30 to 40 attended school each day.

Many inmates considered the education they received while in jail to be important for their future. For example, those participating in ESL instruction explained that they needed to learn English or improve their ability to speak it in order to find employment after release, and they valued the opportunity to learn English during their incarceration. Many inmates said that education would help them to get a

[7] [7]Females have traditionally been jailed largely for nonviolent or drug-related offenses; however, a constantly increasing proportion of the female jail population is now in for violent crimes. This in itself has changed the programming offered at the two women's facilities.

better job. And some spoke of wishing to continue their education after they are released. However, given the cultural and educational backgrounds to which may inmates return upon release, most teachers and administrators believe "we're [CED is] the best hope for the people failed by K to 12 [primary school education]."

All the inmates we spoke with supported jail schools; one said that if teachers were paid a better salary, then better people would choose teaching as a career. He concluded, "If I'd had better teachers when I was in school, I probably wouldn't have ended up here." Another commented that he attended "just to keep my mind occupied and to get in better shape mentally". Unlike correctional education programs at long-term facilities, jail programs do not have an opportunity to keep a client for a sustained period of time; thus, inmates ten to have relatively short-term and process-oriented goals; as one inmate said, it was good to get "back in the school mode."

Upon entering the system, inmates are classified based on a number of variables. Men, women, and pre-operative transsexuals are separated initially; subsequent classifications are based on behavior, gang affiliations, race, life styles, alleged offense severity, and prior criminal background. If possible, those who will have to make numerous court appearances in the near future are assigned to a downtown facility. After court appearances diminish or after sentencing, inmates may be taken to facilities farther away from downtown. Inmates may be transferred among jails on little or no notice, usually at about 4:00 AM to minimize contact with other inmates. This juggling of inmates is undertaken to relieve crowding and to break up particular inmate combinations. Furthermore, inmates can also be released with little notice. The downtown facilities have the most transient populations. Thus, central coordination is required to provide continuity in the educational program, and the development of administrative systems, for example, for student monitoring and tracking, is a major concern of the Media Services unit.

When inmates are released, they often find themselves returning to the same perilous situations from which they were removed by police intervention. Drug abuse and dysfunctional families and friends often make it difficult for these men and women to find a better lifestyle after their release, despite resolutions made behind bars. CED has made efforts to assist inmates in their transition to a positive lifestyle by hiring rehabilitation counselors who provide referrals to the inmates.

Inmates learn about school in ways that vary from site to site. Educational opportunities are mentioned in a video (produced in both English and Spanish language versions by the Media Services Lab) that is shown to all new prisoners as part of the booking process. Understandably, some are unable to absorb all of the information presented in the video; these inmates may learn about the school from loudspeaker announcements that "school is open."[8] Some inmates told us that, at

[8] The exact mechanisms for publicizing school vary from facility to facility.

times, they are "hassled" by others who do not attend, but this harassment is usually short-lived. Often the hecklers subsequently decide to enroll in school themselves. In some sites, inmates enroll in school by completing an "Inmate Information Request Form" that needs to be signed by a teacher (certifying that space is available) and by the inmate's "dorm officer" (supervising deputy). The dorm officer can deny an inmate the opportunity to participate in any inmate service. Although it does not happen often, some dorm officers have prohibited inmates from attending school.

INSTRUCTION

APPROACHES

CED's educational program is eclectic; the Division uses a variety of methods and materials to respond to the many needs of a diverse population. Literacy is just one concern, among many, that the program attempts to address. If one were to try to characterize the program's overall focus in a simple phrase, "life and work skills" might be a good choice. Program instructors address everything from basic reading and writing, through drug and AIDS awareness education, to parenting skills and occupation-specific job training. The emphasis is as much on building self-esteem and a new sense of direction as on specific knowledge and skills.

The dominant approach to instruction is individualization, and most educational activities operate on an open-entry/open-exit basis. Instructors, at their own discretion, use a variety of methods including videotapes (frequently combined with small group discussion) and computer-based instruction to meet the needs and

preferences of their students. Many educational offerings are made available in the individual study mode.

The educational philosophy of the program is, as stated in its mission statement, "... to provide opportunities for inmates to participate in a comprehensive educational program which helps to allow them to make positive and productive changes in their lives." Or, in the Director's words: "The ultimate goal is to have the inmates leave the jail better than when they entered." The Director elaborated:

> "The philosophy of educating inmates is growing much more positive. Many feel that county jail facilities provide the best opportunity to change people around because the crimes and circumstances involving these inmates are not as bad as those in state and federal facilities. Therefore, there is a strong need to increase these individuals' self-esteem, motivation, and have them understand that they are in charge of their own destiny. As a result, there is a need to have a holistic approach to educating this population. This would then include having classes in a variety of content areas, such as

> health science, parenting, substance abuse and other topics that are relevant to the inmates day-to-day lives."

CED's clients unquestionably have tremendous needs that education alone can only partly fill. Many inmates come from dysfunctional home environments, characterized by alcohol, drug, and child abuse. Poverty, malnutrition, parental illiteracy, and limited job opportunities combine with a lack of positive role models and inadequate primary school education to increase the likelihood that they will spend a fair portion of their adult lives behind bars. Incarceration -- even with educational opportunities -- does not eradicate these problems and ensure rehabilitation. In the first place, only 10 to 15% of inmates enroll in educational opportunities. And, because of the location and logistics of their work, CED instructors are limited in their ability to form close personal relationships with students, to understand their needs, and to monitor their progress over time.[9] On the other hand, according to the Administrator for Media Services:

> "We have lots of success stories, people we turn around. ...We don't have to very successful to be very successful in this business. I recently read a study that calculated that a teacher [in a correctional environment] just has to turn around 3 men and one and a half women over his or her lifetime in order to pay off -- because of all the social costs of crime and incarceration."

TOOLS

The Administrator of Media Services at CED gives the credit for CED's commitment to technology to CED's Director, who had the vision to understand what technology could do and who has provided unwavering support to the Media Services function. The Division has been aggressive in seeking funding for its efforts, and it has pursued both technological innovations (e.g., internally developed courseware) and administrative innovations (e.g., package courseware selection procedures). The primary emphasis of the Media Services program has always been on video technology, but initiatives in computer technology, networking, and multimedia systems are no less impressive.

The first computer-based technology was implemented in Men's Central Jail, one of the largest and most crowded facilities. Apple II's were installed, and off-the-shelf software was used.[10] Despite some resistance from deputies, the technology was ell accepted by the inmates, and the use of computer technology has continued to expand. Today, the administrator of Media Services describes the approach as "an

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[9] One of the Sheriff's rules is that teachers are not to form any personal relationships with inmates, even to the point of telling an inmate where they live. This is to prevent the chance of a disgruntled ex-prisoner from seeking out the instructor and perhaps taking out their frustrations with the jail system on that person or his/her family. Yet another reminder that CED is not dealing with a conventional population!

[10] The "Milliken Reading Program", about which no oneseems to be able to provide any further information.

open architecture in a closed environment."

"Open architecture" refers to the use of a standard (non-proprietary) hardware platform (in this case, the Apple Macintosh), for which many independent software vendors have developed courseware packages. Although he recognizes that "many [adult literacy] programs will be better off with integrated learning systems," because other programs may be unable to build the "infrastructure" needed to support the open architecture approach, the Administrator of Media Services "resisted" implementing integrated learning systems in CED: "As I move around the country, ... I find millions of public dollars spent for systems that don't meet the needs."

The "closed environment" the administrator spoke of refers not only to the jails, but to the Sheriff's Department's understandable concerns for data security. We were told of a situation in which an entire jail was "locked down," because a student prisoner had stolen a diskette on which his had saved his word-processed life story. Coordination (e.g., sharing student records) across the 11 jails and the administrative sites of CED has been hampered by the Sheriff's distrust of the "M-word," referring to "modem" -- a means of communicating data through difficult-to-secure telephone lines. As Media Services pursues its plans to network the sites, currently within site via Ethernet, eventually across sites with optical fiber and ISDN, the administrator hopes to allays fears about possible data leakage between the jails and the outside world while at the same time providing sufficient internal connectivity.

Whether the "environment" is open or closed, the "open architecture approach" has some significant disadvantages. It requires considerable technical expertise and the development of an internal information technology "infrastructure" that may be beyond the capabilities of smaller adult literacy programs. For instance, there are literally hundreds of instructional courseware packages that could be used on CED's computers. It would not be cost-effective for each interested instructor to review them all, nor is it likely that an uncoordinated approach to courseware evaluation would result in appropriate selections.

CED has taken an active approach to managing the software selection process. Packages are assigned to interested instructors for trial. If the packages work in one site, they are made available at all the others, but only after another instructor (retained full-time by CED for this work) has "documented" the package to help other instructors use it. This documentation consists on a one-page sheet in a standard format -- distributed with the courseware -- telling instructors how to get the package running, how to incorporate it in the recommended course outline, and how to evaluate student progress, performance, and "attendance" when the software is used. While each software package may be easy to learn on its own, CED instructors may have access to dozens of relevant packages, and this documentation in a standard format considerably eases the learning burden.

At the time that CED first began introducing computer technology into its course offerings, the administrator of Media Services was quite dissatisfied with the quality and range of software programs available, especially in basic literacy. To a considerable extent even today, available basic literacy courseware has been designed for children and does not taken into account the interests, needs, and psychology of adult learners. As a result, CED has lobbied software vendors for years for better adult programming.

As early as 1981, CED began an aggressive and innovative program of internal courseware development that has extended into newer multimedia technologies. For instance, the Mac Literacy Project, in 1989, developed reading materials for 3rd and 4th grade reading levels using significant input from teachers. This internally-developed courseware made significant use of idioms frequently heard by inmates in the jails, thus helping them to acquire contextually- relevant literacy skills much more quickly. Another recent software development effort was designed to introduce students to the "mouse," a pointing device used in much interactive software. While CED students generally find it easier to use a mouse than a keyboard in interacting with the computer, it can take an instructor at least a quarter of an hour to familiarize one student with the mouse sufficiently that the student can use courseware without further instructor assistance. CED's engaging program on "how to use the mouse" employs synthesized speech as well as text and animation to reduce -- significantly -- the amount of instructor time required to make the student self- sufficient in using computer-assisted courseware.

A major new initiative is in the area of ESL instruction, where the lessons involve realistic adult living situations (e.g., going to the doctor). The software employs recorded digitized speech and allows the student to record and playback his or her own attempts to imitate the target sounds. In test situations, CED courseware developers have found learners willing to work with this software for hours on end. CED hopes to recoup the developmental costs of this program by selling it. CED has also produced innovative software for use in vocational training programs, including carpet laying, commercial painting, tile setting, and dog grooming. Most of these programs employ "hot text", so that learners can click the mouse on unfamiliar words and thus hear them spoken. CED developers believe that this aids in the acquisition of literacy.

Most courseware development at CED is done on Macintosh computers, using the Authorware and Hypercard software development systems. CED is committed to Mac technology and has received useful assistance in program development from Apple Corporation. Instructors are heavily involved in all development projects; recent multimedia development programs have made use of a three-specialist team: instructor, graphic artist, and software developer.

Currently, CED has about 180 computers installed in 12 sites. The majority of the

machines in use today are Apple Macintoshes, although some Apple II's still remain in use. At most of the sites, the computers are used as stand-alone workstations; at some sites, local area networks connect the machines. At the two sites we visited, students used the computer on a first come, first served basis. Students have access to a word processing package on CED computers, but, despite student interest, CED has not yet placed a major emphasis on teaching computer skills per se.

As noted, video instruction has always been the primary emphasis of the Media Services Laboratory. Video production facilities at CED are impressive. The Lab produces two kinds of videos: short "single-concept videos" and longer, higher-quality feature videos, such as the award-winning "What Mother Takes, Baby Gets". Single-concept videos are short, 8 to 15 minutes, and are often developed to illustrate a particular concept or skill (e.g., the safe use of hand tools) that a particular instructor needs to demonstrate frequently, thus supporting CED's open-entry/open-exit approach to instruction. They are generally produced in one day, with a video specialist taking portable equipment to the "field" and filming the instructor on site; script development and editing to produce a polished look are de-emphasized. Over the years, CED has produced several hundred of these single-concept videos; some instructors have commissioned several. Feature videos are longer, running around 15-20 minutes, more carefully edited, and designed for more general use. One example is a series on the teaching methods of instructors who have been particularly successful in ESL instruction. This series is being used in teacher inservice training. Even the feature videos are not "studio" productions, but involve on-site filming and a naturalistic feel.

Each CED classroom has a VCR for showing videos to inmates. Most sites also have at least one laserdisk player attached to a computer, but as yet there is relatively little software available for these machines, so current use is limited.

Given the transience of the CED population, student tracking has been a major problem, and Media Services has pursued the development of "management" applications along with instructional development. Administrators currently use e-mail to communicate within CED's structure and with HLPUSD officials, and most CED staff have a computer workstation. A VAX mainframe linked to the administrative network is used for electronic records management, report preparation and other purposes.

Techniques

CED and the Sheriff's Department jointly decide on what courses should be offered at each site. For example, parenting classes, initially offered at the women's jails, have recently been expanded to the men's facilities. Because many of the programs are limited in size, there are waiting lists for some classes; the parenting class is one of the most popular, and it is often required or recommended by

probation officers and attorneys.

Courses are, for the most part, open-entry/open-exit and designed for individualized instruction. Many courses, such as the AIDS awareness seminar, are designed as one-day programs to accommodate the transient client population. When video is used in courses like these, the videos are typically shown to groups of students in segments, followed by periods of discussion. "'What Mother Takes, Baby Gets' is not the sort of video, you [an instructor] can put in a [VCR] machine and then leave the room." Other courses are run in a lecture format, with a clear beginning and end, and precise expectations for each day's outcomes and learning objectives. For example, the parenting education course continues over a 12-week period. The hours of classes vary. Due to legislation, inmates are limited to 3 hours of instruction per day. Classes are scheduled when the Sheriff indicates that there is free time in inmates' schedules, including late at night -- for vocational education in office cleaning.

CED has the ability to request students' transcripts from school districts in California and other custodial facilities. When inmates are transferred from one facility to another, either county, state or federal, teachers can send the student's academic information, upon request. Many inmates take advantage of the ability to continue their education at other facilities; in 1990, the most recent year for which figures are available, some 2100 transcripts were received and 1900 sent out.

In general, inmates have a high degree of discretion in what they study and how they go about it -- a manifestation of CED's philosophy of empowering the inmates. As one inmate put it: "We are men -- we have to make our own decisions. Our learning here is self-paced, self-motivated and self-determined; no one is looking over your shoulder to see what you are doing." Thus, despite the watchful attention of instructors and custodial staff, many inmates experience correctional education as a personal and liberating experience. Indeed, a customized program of individual study is the only possible approach for some inmates. Coercion is not a part of CED's instructional approach: If inmates stop showing up for classes, no one tries to bring them back.

When first entering the schools, inmates are given an aptitude test and set up with a tutoring program on the computer. After the initial assessment and introduction to the center and assignments are given, as one participant put it, "you are basically on your own." When inmates feels ready to progress, an instructor will work with them to assess their accomplishment before giving them additional learning materials.

The CED educational system is basically set up for English language speakers, in part due to the diversity of languages (approximately 18) widely spoken in greater Los Angeles -- no program could hope to cover all of them. While there are some accommodations for speakers of other languages, Spanish speakers tend to have

some difficulty in accessing CED services. Spanish speakers are currently first given cassette tapes and headphones to learn enough English to allow them to work with English language course materials. Several people we spoke with recognized the need for improved resources for Spanish speakers. At one site we visited, neither of the two teachers spoke Spanish, and one inmate asserted his belief that "We [Spanish-speakers] don't get a fair shake [in the educational programs]." As noted, improving these resources is clearly one of CED's major priorities, hence the previously-mentioned ESL instruction program currently under development.

Evaluation Procedures

Though there is no systematic program evaluation component in CED, evidence of its effectiveness is offered by the fact that the program has expanded continually since its inception. Thousands of GEDs and other certificates have been awarded since the program began; during the most recent school year, 374 GEDs were issued along with over 2000 vocational certificates of various types and an equal number of transcripts. The Western Association of Schools and Colleges has accredited the program.

Despite these impressive statistics, administrators indicate that it is difficult to evaluate their effectiveness at rehabilitating inmates due to many constraints, such as high inmate turnover and an inability to keep in contact with student after release. As one administrator put it, "we have no alumni network" -- no way to keep in touch with former inmates to see what happens to them. In fact, such contact is explicitly forbidden in most cases by the conditions of probation. Thus, process measures, such as voluntary inmate enrollments, are probably as appropriate as hard outcomes in judging the effectiveness of CED.

ISSUES IN TECHNOLOGY USE

By and large, instruction in CED is primarily provided by instructors using traditional educational approaches and materials. At one site we visited, only a handful of computers were in use; the school was full of inmates, but largely engaged in non-computer work, using textbooks and workbooks to complete their assignments. Information technology is in actuality just one of many tools used at CED, despite its high profile and the consensus that it is the wave of the future.

Nevertheless, technology has noticeably added value to the program in two major ways. First, video has been extensively used in teacher training, helping to overcome the difficulties associated with a large instructional service area. Second,

both videos and computer-based materials have been deployed to augment traditional approaches to self-study and classroom-based education.

Achieving this deployment of instructional technology has required the development of a sizable support infrastructure. The staff of Media Services have official responsibility for providing technology training and support, so that teachers can concentrate on instructional activities rather than on the technology. Nevertheless, without official sanction, technology "gurus" have emerged at some local sites; the four-site North County facility group, for example, is served informally by a teacher at one of the facilities who has developed significant programming and computer-related skills. The emergence of such local technical experts is a relatively common occurrence wherever technology is widely used.

CED's major efforts in internally-developed instructional materials (both video and computer-based) have made extensive use of instructor input. Despite the obvious coordination costs involved in this effort, it has paid considerable dividends in terms of courseware that meets the distinctive needs of the client population.

The lack of an electronic linkage among the jail facilities is a major concern to many parties; even one of the inmate clerks we spoke to noted that this linkage would expedite the transmission of transcripts. Until concerns about data security and financial issues can be adequately addressed, however, it is unlikely that much progress can be made in this area. For the time being, the dream of a "complete digital link between all parts of the program" enunciated by one of the administrators is likely to remain unreachable.

The Media Services department is an extremely strong component of CED's program. It is seen as a leader in the development of instructional materials produced for incarcerated adults, and its materials have been widely disseminated. The prominence of this department has resulted in contracts with other public and private entities for the development of instructional materials. Consequently, as is frequently the case, there is some room for concern about the ability of the department to manage successfully a transition in its leadership. The Administrator of Media Services, the chief architect of the technology initiatives at CED, is being phased into a new role as head of the state's new "Outreach and Technical Assistance Network", a social and computer- based network for information sharing among educators in California. As a charismatic leader in CED's technology program for over ten year, his reduced involvement at CED will surely be missed. In many other settings, such transitions in leadership have been a major stumbling block in the continued use, expansion, and innovation of technology. It is to be hoped that CED has created enough organizational thrust toward technology utilization that the bright possibilities illustrated by the program to date can continue to be realized.

GENERAL ISSUES

CED has acquired a reputation for innovation not only in the correctional field but also in the broader arena of technology use in literacy education. It is a dynamic and multifaceted program, in an environment that is already difficult and getting more so. CED appears to have a firm grasp on where it is going, and the vision and ability to get there. While it values its tools and uses them well, it has wisely not allowed itself to forget that tools must serve broader purposes -- technology does not exist for its own sake.

A key element of the success of CED has been the support of the Sheriff's Department. However, this overall support has not always been translated into understanding and appreciation at the level of the individual deputy. Teachers and administrators continually stressed to us (and to each other) the need to cultivate relationships with the deputies at the jail. It is these individuals who allow inmates to attend school, and manage the atmosphere that can either make learning possible or impossible on the individual dormitories and cellblocks. Many people indicated that the best time to introduce deputies to school is during their training, so that the school will not be a new concept for them at the jail. The support of the deputies is critical, because without it there can be a drastic decrease in attendance (and thus in support for CED generally). Recently, CED has developed a video on the educational training program for use at the Academy, which may help relieve these problems.

The financial support for hardware, software and teachers is, without a doubt, also a key component. CED has had the advantage of having a school district lobbyist at the state level who is supportive of its struggles. The successful efforts to coordinate services with regards to different types of materials and with different types of instructors is a major task that can not be undertaken cheaply. CED has been lucky -- or capable -- enough to be able to pay for these services through imaginative pooling of resources from multiple sources. Whether this can continue through the current period of severe financial constraints at all levels of government is not clear at this point. CED has made contingency plans against this possibility.

The language issue is critical, and is likely to become more so. Los Angeles is ever more multicultural and pluralistic, and the system needs to be able to respond effectively to the myriad on non-English-speaking inmates who get caught up in it. Technology seems to offer the best immediate resolution to these issues; videos and even software in Spanish can go a long way, although not all the way, toward meeting these needs. Ultimately, teaching will probably have to make even more adaptations to Spanish if it to be able to meet the needs of a very sizable component of the affected population. CED's several initiatives now under way in this area should help significantly.

As one administrator stated, "it is the implementation of the program which is the key to a successful outcome." That is, taking into account the needs of both the teachers and students has been the key to the successes that CED has achieved in the field of correctional education and in particular, the creative application of technology to this extremely difficult and challenging setting. Like most programs in this area, CED is in the position of Lewis Carroll's Red Queen -- having to run faster and faster to stay in the same place. Whether or not it can continue to manage this feat is the key to whether the LA County Jail system will actually manage to make a difference in the lives of its inmates, or serve merely to warehouse them against the next period of societal chaos.

GLOSSARY

CED: Correctional Education Division

HLPUSD: Hacienda-La Puente Unified School District

BALTIMORE READS, INC.

330 N. Charles St.
Baltimore MD 21201

VIGNETTE

Although Nanci has been employed at a health club, she has had to lie about her lack of education on application forms and could not get a cashier job because she does not have a high school diploma. Although she is a resident of Baltimore, she never noticed the signs "Baltimore, the City that Reads" at bus stops. However, one day she saw Oprah Winfrey mention an adult literacy program on TV. She called the Baltimore Reads literacy hotline and was referred to the Ripken Center. Nanci began to work on her math and reading skills and even learned word processing through a special computer program. She particularly enjoys some of the new Macintosh computer programs designed to help her with things such as reading a menu that are pilot-tested at the Ripken Center. She is also currently enrolled in an external program to complete her high school diploma and has been working on some of the assignments at the Ripken Center with one of the teachers. Best of all, Nanci now spends a lot of her time helping her children with their reading and math. In the future, she plans on becoming a Vista volunteer and working with other adult learners through Baltimore Reads.

OVERALL DESCRIPTION

Administrative Control	Public - Private Partnership
Organization Structure	Community Based Organization
Budget	
Start-up Costs	$150,000
Operating Costs	$800,000
Staffing	
Baltimore Reads	
Administrators	8
Ripken Center	3
Words for Life	2
Curricular Content	

ABE	25%
Basic Skills	50%
GED	25%
Clients	
Ripken Center	
Total	380
Race	
African-American	84%
Native American	4%
White	3%
Not available	9%
Sex	
Female	87%
Male	13%
Age	
22-40 years old	85%
41+	15%
Words for Life	
Race	
African-American	95%
Other	5%
Age Range	15 - 68 years old
Recruitment	
Ripken Center	
JTPA	80%
Baltimore Reads	20%

Words for Life	
Word of mouth	approximately 100%
Retention/Evaluation[1]	78% over six months
Technology	
Ripken Center	
Hardware	
Type	IBM PCs (networked)
Quantity	Fourteen
Software	WICAT, Word Perfect
Words for Life	
Hardware	
Type	IBM PCs (networked)
Quantity	Eight
Software	Computer Curriculum Corporation

CONTEXT

It is estimated that of the approximately 736,000 people in the city of Baltimore, over 200,000 live with functional illiteracy. "Baltimore Reads", an integrated system of city-wide literacy programs established to help alleviate this situation, includes a literacy hotline, literacy hubs and satellites, technical support and assistance, and research into challenges faced by adult learners. Baltimore Reads represents an extremely interesting combination of public and private literacy initiatives, and illustrates how a technological focus can be carried out with an effective combination of flexibility and central guidance.

Baltimore is an older eastern city, with all the problems that such cities face in terms of declining industrial base, concentrations of socioeconomically disadvantaged people, and strained governmental services. Nevertheless, it remains an extremely livable city, with an urban culture and an identity that have stood up to and endless array of challenges. Starting with its then-innovative "urban homesteading" program in the

[1] This represents the Cal Ripken, Jr. Center only.

early 1970's, through which entire neighborhoods of classic homes were restored and preserved and continuing to the magnificent Inner Harbor development, Baltimore has shown a capacity to mobilize complex public-private partnerships to a degree largely unknown elsewhere.

Baltimore Reads is unique in several ways. First, it represents a city-wide literacy effort and has the full support of the mayor and other key Baltimore key figures. Both United Way and governmental funding sources support the effort; one learning center has also received considerable support from baseball star Cal Ripken. Baltimore Reads operates two learning centers directly, and also provides personnel, technology, and information to numerous other city agencies and public facilities, and coordinates literacy projects operated by government and private agencies throughout the city.[2] A wide variety of technology is employed, and the staff is receptive to innovative approaches for adult learners.

PROGRAM DESCRIPTION

HISTORY AND MISSION

The roots of Baltimore's literacy initiatives lie in the political agenda of the city's administration as well as in general civic consciousness. In his initial inaugural address in 1987, Baltimore's new Mayor Kurt Schmoke declared:

> "Of all the things I might be able to accomplish as Mayor of our city, it would be to make me proudest if one day it could be said of Baltimore that this is *the city that reads*."

The Mayor moved quickly to address the issues as soon as he was installed in City Hall. In the fall of 1988, a collaboration between the Mayor's office and the United Way of Central Maryland resulted in the establishment of two linked but significantly different operations:

> **Baltimore City Literacy Corporation (BCLC)**: A "quasi-governmental" agency under the Mayor's office; the Director is a member of the Mayor's Cabinet, and participates in official city business. BCLC is the arm of the partnership responsible for relations with other governmental agencies, and was principally responsible for developing the infrastructure of the city's literacy initiatives.

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[2] During our study in Baltimore, we were able to visit the central administration and two centers. The **Cal Ripken Jr. Center** is one of the two operated by BRI directly; **Words for Life** (WFL) is more or less typical of the independent efforts that have come under BRI's roof since its inception. In our subsequent discussion, we emphasize both the similarities and dissimilarities of the two models of administration as reflected in contrasts between these two centers.

Baltimore Reads, Inc. (BRI): a private, non-profit corporation, established to be the fundraising and coordinating component of the partnership. The Director of BCLC also directs BRI, although it has its own independent and self-perpetuating Board of Directors with 32 representatives from the business community, United Way, schools, AFL-CIO, newspapers, Junior League, YMCA, churches, social service agencies, and political leaders.[3]

The process of planning and creating these agencies happened quickly, a self-described "quick and dirty" effort that created a complete strategic plan within the first six months. For the first time, a variety of agencies with literacy interests but no previous history of collaboration -- as diverse at JTPA, the Community College's ABE program, and the public library -- were induced to sit around a table and contribute ideas to the pool. The plan that emerged called for BCLC to develop a series of literacy centers, and for BRI to coordinate the efforts of the BCLC operations with about six existing programs of widely differing structure, sponsorship, and effectiveness. The original idea was that the BCLC's projects would in time develop into stand-alone community agencies, complete with their own boards of directors and funding. As the Director said, BCLC was "to start up [the programs] and get out".

To date, BCLC has been able to establish two centers of the projected six; neither has thus far made significant steps toward self-determination. Logistics and the effects of the economic recession have combined to postpone this initial goal. The Director indicated that she "doesn't feel that bad about [not opening the other centers] because if we had more I don't think we could have done a quality job."

BCLC's first center, the "Learning Center Northwest", opened in January 1990; the "Ripken Learning Center" opened six months later. Both are self-described "holistic" programs that include counseling, classrooms and computer labs all together at the same sites. This combination made these programs different from the other efforts in Baltimore Reads, which tended to be more traditional tutoring programs. When BRI began in 1988, there were six community-based literacy programs. Now there are about 21 programs, collectively serving 4,037 people in the 1991 funding year. The programs not operated by BCLC have various types of administrative relationships with BCLC, ranging from direct funding to administrative and technical support.

One of the challenges originally facing Baltimore Reads was how to build consensus in the provider community. Different factions of the community were at odds with each other; BCLC and the Director in particular were not allied with any one perspective. The Director and many of the initial staff did not come from traditional literacy program backgrounds; in fact, she had been in community organization prior to being recruited by the Mayor to head the effort. She says that although she cared deeply about the issue of literacy, she was "neutral" on both the organizational politics and the

[3] At least 20 of the board members are very active. For a while the publisher of the principal city newspaper, the *Baltimore Sun*, was Chairman of the Board.

pragmatics and ideology of teaching reading to adults. She feels that this neutral position was significant in creating a working partnership among many diverse providers.

BRI was less successful in its attempt to secure sponsorship and direct support from one of its initial targets, Apple Computer Corp. The Director was convinced early on that the literacy programs should have computers, and that they should go right to the source for both equipment and expertise. As she said, "I tried to sniff out Apple Computers in 1988", since she was an early Apple devotee. "I believed in Apple and their philosophy. I couldn't get them to the table. Baltimore had a reputation as an IBM town. Apple didn't want to focus here. I wanted Apples. I thought the software was better. I couldn't get a donation. Apples are more user friendly." Over time, Apple equipment has become an integral part of the program, although the company has never been particularly involved. The Director is convinced that "computers are the ticket to the world of work for the adult learner to learn to develop critical thinking skills. They are an incredible tool. "

Structure and Organization

Baltimore Reads is currently devoting its efforts toward developing a flexible and eclectic adult literacy curriculum that builds on basic skills, creating family literacy programs, and establishing workforce literacy programs that link private employers with resources of literacy centers. Examples of types of support services provided include setting up literacy programs in local churches and a pilot evening program for workplace literacy.

Baltimore Reads operates a Literacy Hotline which serves as a source for information and referrals for learners and volunteers. The hotline operators are members of the Senior Aide Program sponsored by BCLC, and have been trained to appreciate the sensitivity of the adult learner. The operator, in addition to retrieving basic information about the caller (name, address, and phone numbers) also tries to discover the caller's reading problems. This information is then used to refer the caller to the literacy program (or "Literacy Hub") that can best serve his or her needs. These calls are followed up by a post card sent to the caller's home indicating the same information to was provided over the phone and a phone call to the program to which the person was referred to determine if the person entered the provider's program. If the person did not enter the program, the caller is contacted to determine if there is another program or hub that could better meet his/her needs.[4] The Literacy Hubs are located in various parts of the city. These centers offer classes and tutoring, computer-based learning programs, referral services, and other community-specific programs.

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[4] Unfortunately, there appear to be no analyses made of the effectiveness of the follow-up process.

Baltimore Reads has also just started a Family Literacy program, held at an elementary school in the late afternoon.[5] Many times food is provided. The program in Baltimore has been difficult to establish because, unlike the rural family literacy programs that follow the Kentucky model, in Baltimore most of the parents work. Families in rural programs are able attend classes all day and are provided with all meals. The types of families involved with the family literacy program in Baltimore have difficulties finding time for classes. Thus, according to the Director, the problem is not that they drop out, but that their attendance is sporadic.

Two of the more important coordinating services provided by the BCLC/BRI axis are curriculum expertise and technological support. There is a central curriculum specialist who helps programs to identify useful materials, develop designs and training programs, and in general stay in touch with the professional community in the adult literacy field. While programs retain their autonomy and ability to develop independent programming, there are some incentives to coordinate through the central administration. In addition, there is a central technical specialist who provides assistance with all issues relating to computing for both BRI's own centers and the range of other programs that use varying amounts of information technology.[6]

RESOURCES

The initial funding for the programs reflected a partnership, with $75,000 coming from the Mayor's Office and $75,000 from the United Way. The support of the Mayor has been an important part of the program from the beginning, and the combination of this political support with more mainline social-service role of the United Way has provided an effective basis for elaboration of the program. BRI is not currently a United Way agency as such, although the UW did put up some start-up funds. It is considering the advantages and limitations of full UW membership. Affiliation with UW has been, in the words of the Director, a sort of "Good Housekeeping Seal" of endorsement by other community agencies, and has enhanced BRI's status in the social service community. The Board expects to decide soon whether to seek full UW certification. In addition, the city's current ABE contract with the Community College is up for renewal soon, and BRI is considering a possible move to seek that contract. That would mean a significant shift of both resources and attention.

Thus, Baltimore Reads has put together an eclectic funding package, including adult basic education funds (administered at present through the Community College) some library service money, and $800,000 from city-administered JTPA funds. Additional money comes from state welfare reform and Literacy Works programs. As the director says "We've been able to leverage money from JTPA, public, and private sources."

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[5] We were not able to visit this program, so we were unable to gather much information on its specific content.

[6] His role is described in more detail below.

One of the more notable supporters of the program among its private sources has been a large local corporation that had identified problems associated with literacy levels among its workforce. Another unusual supporter has been Baltimore Orioles baseball personality Cal Ripken Jr. Ripken is a "hometown boy" who believes in the importance of education, and made a decision to promote literacy in Baltimore. Ripken was interested in demonstrating to kids, as well as the community at large, the role of the athlete beyond the playing field. The timing of Mayor's Schmoke's vocal commitment to literacy and Ripken's desire to promote a project was coincidental but fortunate.

Baltimore Reads employs eight full time people; three people work part time at the Ripken Center and two at the Learning Place Northwest. Until six months ago, there was a "program development director" who spent considerable time with program problems. On his departure, the curriculum specialist described above was hired in his slot, and the program development position will probably remain unfilled for the time being. The staff also has a special events person, and a fund-raiser who writes grants and finds corporate sponsors. In addition to the technical specialist, another technical person maintains the data base and coordinates the five community based literacy providers that are funded by the program, and occasionally backs up the technical specialist in resolving computer-related problems. In addition, there is a volunteer coordinator who works with the Literacy hotline, and two senior part time aides.

BCLC/BRI offices are currently housed in a restored older office building in the central city not far from City Hall. However, space is at a premium, and the agencies are currently looking forward to a move to larger quarters in an as yet unselected site. The Ripken Center is located in a three-story townhouse in the northern part of the city, a low-income but not notably deteriorated area.[7] It is particularly convenient to city bus lines. Words for Life is located within a community service agency called "The Family Place" in the mideastern part of Baltimore, an economically deprived area located near housing projects and the Johns Hopkins Medical Center. The center itself is very similar to a home. The rooms are small to moderate in size and it is very easy to feel comfortable.

The chief technical staff member at BRI describes himself, not inaccurately, as the "Indiana Jones of used computers". As we have noted, the use of computer technology has always been at the heart of BRI's planning, but as in many areas, the specific programs have neither the resources to acquire hardware and software nor the expertise to install it and keep it going. BRI's technical specialist has played a key role in giving Baltimore's programs a significant technological twist.

The technical support coordinator plays a wide variety of roles in the programs, from "computer guru" to part-time classroom teacher in several of the projects. Interestingly, his background is not directly in adult literacy but rather in software sales; he worked

[7] Like many other components of BRI, the Ripken Center is contemplating a move to larger quarters, hopefully nearby the present location.

for a major chain of software shops for many years.[8] Given his background, he concentrates his attention primarily on computing and software, leaving other technologies such as video largely to the program specialists or to the projects themselves. Among other duties, he is in charge of screening potential new software. His office is crammed with demonstration programs sent to him for evaluation; several large vendors work with him directly. His policy is to try out new programs at one or the other of BCLC's "hub centers", including the Ripken Center, before going further afield with it; if it will not work well under these more controlled conditions, he reasons, it is almost certain to fail elsewhere.[9]

Most of the staff of Baltimore Reads is paid. An aggressive outreach effort has been aimed at getting volunteers through the Baltimore City Volunteer Corps. The organization gets volunteers with experience in computers, accounting, fundraising and other professional help, but their is still a need for additional help from volunteers. Currently, there are seven or eight very active volunteers, as well as a Vista volunteer. Another Vista volunteer will soon be assigned to Baltimore Reads and sent out to help in other literacy organizations. In addition, Baltimore Reads has four Vista volunteers out-stationed at several community-based literacy providers.

Volunteers are also a strong component of the specific sites. Words for Life, for example, has had a lot of support from the Johns Hopkins University School of Public Health, which is located nearby. An administrator at the university feels that part of the educational process is enhanced by students receiving experience in the field and in the community. Additional volunteers are referred from Baltimore Reads to WFL. Volunteers are used in various capacities, such as classroom aides, computer aides, or in their area of expertise, such as advertisement.

Words for Life employs a full time director and one part time teacher who instructs the evening class. The director instructs the morning and afternoon classes, along with conducting fundraising and networking activities for the organization. Staff at the Family Place include counselors, child development specialists and drug counselors.

The Ripken Center is one of the largest operations. It employs eight persons: a Director, three teachers, one administrative assistant, an intake counselor and a life skills-career preparation counselor. The Ripken Center will hire a VISTA volunteer shortly and would like to hire an instructional coordinator. The teachers at the center come from varied backgrounds. Of the three teachers, one was retired from another teaching position and another had just graduated from college. Although community-based teachers do not need a state credential, part of the agenda of

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[8] He was not wholly new to literacy programs before joining BCLC, however; he had spent a number of years as a volunteer literacy tutor.

[9] He noted that his previous experience selling software was "excellent training" for setting up short demonstrations of new programs for non-users.

Baltimore Reads is to professionalize its teachers. The retired teacher has a background in adult basic education, and teaches primarily the lower-level reading classes. She had had no previous computing experience, but has come to appreciate the value of the technology as her experience with it grows.

The third teacher had experience teaching ESL and tutoring in Tokyo. He has a BA degree in Liberal Arts and majored in religion and vocal performance. He had some experience teaching in private schools in Baltimore, and responded to an ad in the paper for a position at the Ripken Center. He has been at the center for over a year, and teaches three hours a day, five days a week. One of his classes has students from the 3rd to 6th grade level; the other is from 6th to l0th grade. He also spends time in the computer room. A year ago, he admits, he had some trouble showing clients how to use the computers. He had some experience with Apple computers but was never trained and had no training in literacy education. However, he is now thoroughly comfortable with the computing environment.

The atmosphere in all the facilities is friendly and comfortable. On the walls are signs that say that the walls are for people to put up what they want. There are all kinds of signs posted that encourage learning. Some of the signs read: "Take these magazines home. Your children copy you. They do what you do", "If you want a smart child, he or she must read," and "Make a special time to read with your child. Turn off the TV and have reading time."

CLIENTS

The Ripken Center serves primarily residents of the East and Northeast sections of Baltimore, but clients come from all parts of the city. Clients for the Ripken Center are referred from JTPA or Project Independence.[10] About 70% have been through some type of job training program. Many are motivated to attend school because of their children; either to help them with their homework or because their children are grown and they want to do something for themselves. School is seen as a positive thing to do.

The majority of the clients of the programs coordinated by Baltimore Reads are referred through the Baltimore Department of Social Services and are required to attend as a condition of public assistance. Most of the students at the Ripken Center are referred from JTPA/Office of Economic Development, and the classes are paid for by these agencies. JTPA will fund six months worth of education for its clients; since the Center is dependent on JTPA funding, its classes are thus set up in six month segments.[11]

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[10] Project Independence is Baltimore's work ttraining program for public assistance recipients, more or less analogous to the GAIN programs in operation in several of our other sites.

[11] After six months, clients are supposed to be able to get a job. The Center does not keep records on the eventual outcome successes of its clients.

The other 20% of students (and funding) come from the community and Baltimore Reads.

Many of the students find out about the program through word of mouth; they call the Baltimore Reads Hotline, or find out about it because of Cal Ripken's publicity., Ripken does various promotional spots such as such baseball card signing to help fund the citywide literacy project and promotes a program called "Reading, Runs, and Ripken" through BRI; money is donated to literacy efforts based on the home runs hit by Ripken over the season.

The students at Words for Life primarily hear about the program through word of mouth. In addition, they are referred by other social services, both internal and external to the center, and the Baltimore Reads hotline, rehabilitation counselors and from Johns Hopkins outreach efforts. Although most of the learners have become involved with the program because of a referral, about 18% have seen a poster or flyer, 12% were referred through another literacy program and 4% heard about the program through word-of-mouth.

The program has created some publicity aimed at recruiting new clients using public service announcements. One of the most successful announcements was done by television personality Oprah Winfrey, who was a long-time Baltimore TV personality and still has ties there. BRI sent her a letter asking for her help, and she responded by filming a television spot in her studio in Chicago. When the commercial plays on local stations, the number of people who call about the program increases. Another public service spot was done to publicize the Ripken Center by Ripken himself, and the Mayor also did a spot. However, according to the Director, Winfrey's spot receives the best response. This spot has succeeded in recruiting men into the program, which is unusual since most of the clients are women.[12]

At one point, BRI considered using a public relations firm to help recruit learners, but canceled the effort because of the costs anticipated. The PR firm had planned a sophisticated campaign to recruit learners using electronic media. The Board of Directors was against the idea of using such an electronic high-tech campaign. One of the primary reasons for the objection, according to the Director, was that Baltimore Reads represents the printed word and therefore most of the organization's publicity should be printed. Yet, she notes, learners seem to be best targeted through TV, and radio has been effective for recruiting volunteers. The future role of electronic publicity for BRI programs remains open for discussion.

BRI is the unofficial guardian of the slogan "The City that Reads", a motto plastered all over town, from bus stops and park benches to billboards. This is both good and bad, according to the Director. On the positive side, the message that "it is safe to say you

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[12] Getting men in the program is difficult, according to the Director of the Ripken Center. Currently only six men are enrolled, out of 65 students. Of 16 students in the last orientation class, only three were men.

need help" has come through because of its high visibility. However, the message also suggests something that can't be delivered at this time to everyone who needs it. It would be counterproductive to be successful in terms of recruitment and then lack the funds to be able to deliver services to a frustrated population.

BRI's Director notes "The challenge is to move beyond but also ride the coattails of the slogan." The Director of Words for Life echoed the same sentiment: "How can I tell a person there is a waiting list for our program, when that person has just told me that they have walked by the building for weeks, and finally had the courage to come in today." Currently, Words for Life has a waiting list of eight persons, as do several other programs (although, at present, the Ripken Center has vacancies).[13]

Most students at the Ripken Center seem to have been referred from another city program in which they had to choose between job or educational training. They said that their experiences in that program were very unpleasant; they were not encouraged to pursue their educational goals, and they found it very difficult not to "lose their cool." They believed it was one of the primary obstacles that could have interfered with pursuing their goals. As one learner said: "I had to fight to get here. They put me in 'work experience' and I said 'no' , I had signed up for the GED. There is no way I am going to work for fifty cents an hour. Those programs are a way for them to get slave labor. I would be working side by side with someone who would be getting the minimum wage. They pick on people who are getting public assistance because we are not paying taxes."

When asked why the GED was important, one learner said "I missed out on getting three jobs. One of them paid $6.50 an hour and another was $7.00 and hour in a hospital taking blood." Another learner said she had a job, but was embarrassed to say she didn't have a high school education. One learner was sent to a skills center before joining the program. The program was very disorganized and she was not treated well. "I don't allow people to belittle me. It is not how much education you have," she observed, "it is how you use it that makes you an ignorant person." Many said they planned on taking the GED exam when they finished. In addition to receiving a diploma, their future plans included going to college, becoming an engineer, and becoming a computer repair technician. One of the learners we spoke with just had become a Vista volunteer and would continue working at the center. From the Ripken center many students go onto the external program, where they can get a diploma.

Their first impressions of the Ripken Center ranged from being scared about having to take a test and not "looking like a dummy and wanting to be liked" to "it was fun because I like tests because the score makes me feel good." Another learner said the people were nice "They help you with housing and kids if you let them know. They will

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[13] Given the decentralized structure of the Baltimore program, it is not possible to determine how many total individuals may be on waiting lists. There is little mechanism for routing clients from one program to another except through individual contacts and knowledge.

find day care. You get tokens for transportation at the start." They said they liked everything about the program. One woman said she was happy with herself and believed it was never too late to do something. She said her five kids like to see her go out to class and she said she can now help her 11-year-old with math. Another client said she is trying to encourage her friends on social service to come to the center. She tells them "Sooner or later the program won't be here. You need to find something that you are going to be able to do." She said the classes are only three hours a day and "You can't beat that." She had been in programs in the past and stopped because she lost interest or had family problems that interfered. Now, she wants to learn quickly. Now she says she feels more positive about herself.

Many of the learners at Words For Life indicated that much of the motivation and desire to learn was a result of their teacher, a man who had previously taught in the public school system. There seemed to be an air of mutual respect between the students and their coordinator. The learners at Words for Life are mostly African American. According the 1980 census, this area of the city had a 74% dropout rate; drugs and teen pregnancy are also major concerns. Poverty is a major problem; the income in this area was lower, per capita, than in other area of the city. The coordinator indicated that "he didn't know how people raise their children; its amazing the number of quality families that keep their heads above water."

Some of the Words for Life students talk about the embarrassment of initially coming into the center. Many students recognize that confronting this problem is a major hurdle; when asked what they want to do in the future, one learner indicated that she "wants to help people like me; people are ashamed to try; people say I'm too old to learn; I want to encourage older people to learn." Other students said that they too "wanted to help other people learn how to read."

INSTRUCTION

APPROACH

The goal of Baltimore Reads is to encourage people to become more literate through a "humane, humanistic and holistic approach." According to the curriculum specialists of Baltimore Reads, one of the strengths of the Ripken Center is that it prepares learners for the workplace by making students more employable. The center is not only concerned with instruction, but also with preparing the students with needed life skills. Whenever appropriate, students are encouraged to pursue a GED. According to the curriculum coordinator, "The GED is a step to upward mobility." The State of Maryland has developed a test called the Maryland Adult Performance Program (MAPP) to test literacy. Baltimore Reads strives to have its learners score well on this test. In addition, the program promotes general reading and aims to increase the capability of learners to read anything that impacts their lives.

Most of the learners come into the programs with other problems in addition to literacy. According to the curriculum specialist, "You have to be prepared to deal with these problems." For example, to meet this need, there are referral and counseling services offered and both the Ripken Center and Learning Place give learners tokens for transportation. Although neither program has day care as an integrated program element, the Ripken Center does have a Head Start program housed in the adjacent. Teachers at both facilities acknowledge that more needs to be done to meet these collateral needs of learners, from food to medical and child care.

Tools

Ripken Learning Center

The computers in the Ripken center (14 IBM PC's and compatibles) primarily are set up to use the WICAT system, originally procured with an eye toward Baltimore's having an opportunity to test different network systems. One machine operates as file server for the local area network. There is also a pilot Life Skills project, produced by the Educational Testing Service, being tested at the center. This system uses an innovative combination of interactive video and computing to teach problem solving strategies in a number of different areas.[14] The WICAT system is used to supplement the classroom instruction. Sometimes the lessons on the computer track directly with those in the classroom; sometimes they are new to the students. The teachers must take the initiative to select appropriate components out of the extensive WICAT repertoire depending on the situation.

Considerable diversity of lessons characterizes use of the system here; during our visit to one computer lab session, at least ten different applications were being used among the 15 students in the rather small room. The teacher had to roam around and try to help people in turn as they encountered problems. WICAT does allow teachers to send individualized assignments to the students. In some of the programs, lessons are read aloud and the students listen to them on headphones. This helps them follow directions and it is perceived as less demeaning to students whose reading level is fairly low. WICAT contains a built-in word processor in addition to lessons in writing, comprehension and math. In addition, WordPerfect is also available to students when they get more comfortable with writing; as one teacher noted, "Once they switch to WordPerfect, they don't go back to WICAT." The students learn how to type on WICAT; as a teacher commented, "You would be surprised at how quickly they learn how to type." Some of the 6-10th grade level students have some previous keyboard experience. The students do most of their writing exercises on the computer, and a great many student papers (some hand-illustrated) are displayed around the center.

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[14] It is based on the work of Irwin Kirsch at ETS, and is framed around the concept that text literacy, numerical literacy, and document literacy are distinctively different skills requiring different approaches to learning.

Words for Life

The computer lab at WFL (eight IBM PCs) is networked and uses Computer Curriculum Corporation (CCC) software. The coordinator tries to incorporate the lessons from the computer into the classroom; this minimizes students being surprised or frustrated by a new word or concept while on the computer, since they have been previously exposed to it in the classroom. For example, the coordinator uses the vocabulary lists from the CCC program as homework. Combining homework and the computer program, according to students, "helps us get our homework right." After the student is assigned a specific level at which to work, the software keeps track of the exercises in this area and how well the student does. As the student learns the material and gets higher scores, the program will increase the level of difficulty; the promotion from one level to another is based on the number of questions in the section (for example, more credit is given for getting 40 out of 40 correct than 4 out of 4 correct).

The program has study areas in math, reading and grammar. There are also word processing and e-mail capabilities that are used only to a limited degree, due to the level of the learners. There is audio assistance for the lower levels. The students say this is helpful; the headphones "give instruction, put reading on the brain." When discussing the level adjustments, the students say that it "all averages out. Sometimes you know the answer, sometimes you don't." This is usually in response to the program's increasing their level of difficulty; if they do very well and get over 80%, then the program will increase the level. Then their score will usually go down to the 50% range until they get a good understanding of the new lessons.

The students indicated that sometimes "the computer makes us angry, because we don't know the words," but that this was not a problem because "the computer makes you think; it makes you think of the next step; you have to give an answer to get the computer to move." One of the best aspects of the program is that it "gives your score; you know what you did wrong, and you can go back and do it again." The coordinator is able to keep track of the students' progress in two ways: (1) by retrieving a report on what the student has done for that particular day and (2) retrieving a cumulative report. There is no way to receive information regarding what the student did on previous days unless it is placed in a cumulative report.

Enoch Pratt Free Library

The Enoch Pratt Free Library (Baltimore's public library system) is about to open small computing centers in four of its local branches to allow free access to residents of the areas.[15] The specialist sees this as a very hopeful development; as he says, "It's hard for students to relate to the computer if they think they'll never use it again." However,

[15] The library system has also refitted one of its branches in East Baltimore to serve the low-reader population in particular. They have had an ongoing literacy volunteer tutoring program, but have not been strongly involved with BRI thus far.

the hardware diversity issue may complicate making access widespread, since it is simply not possible to familiarize everyone with all systems equally.

BRI Technical Coordination

The BRI technical specialist has to contend with an enormous variety of hardware and software in use in the diverse programs under the BRI umbrella, from old Commodore 64's through Apple IIs to MAC II's and high-powered DOS/Windows machines. He coordinates a used computer donation program to increase the installed hardware base. However, this diversity puts significant strains on the system; few of the projects have anyone on site who can serve effectively as a "local expert" to resolve problems, or even perform simple hard-disk backups.[16] Thus, the specialist spends quite a lot of time circulating around between projects with a car trunk full of spare hardware components and software on several varieties of floppy disks. He also spends time trying to make it easier for the non-computer-literate providers to use his tools; he described setting up "menu programs for the nuns" at one church-sponsored project. Recently, he was able to coordinate the acquisition of ten Macintosh Plus computers that were being phased out by a city department; however, the pace of new equipment entry is generally a lot slower than that.

BRI's technical coordinator is particularly convinced of the need to emphasize two main things in using technology for teaching adults to read: graphics/printing and word processing. The value of being able to print things out, and to integrate pictures with text, he feels to be a big plus, and he is continually on the alert for new software that effectively uses both components. In order to increase access to word processing, he has developed an extensive series of exercises using basic WordPerfect, called "Learning Keys". This system provides an almost infinitely reconfigurable set of tools that can be used in many different environments. One of its advantages is that students simultaneously master literacy and one of the most commonly used software packages in the commercial world.

At present, none of the BRI projects are networked with others.[17] Some of the sites have acquired modems, and the specialist has been able to acquire five access numbers to Prodigy. Thus, there is a potential for linking the projects through this commercial service. As yet, however, little use is being made of this opportunity.

In short, while there is a firm commitment at BRI headquarters to use of and support for computer technology, resources remain tight and the effectiveness of the program is maintained as much by sheer will and determination as by the system. As in other

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[16] He tries hard to find people at the local sites; as he says, he does a lot of "showing off new toys" to "anyone I can relate to and show them things". However, the pace is distressingly slow.

[17] Machines within some of the projects, particularly the Ripken Center, are locally networked, however.

cases, it is the quality of the personal commitment of staff to effective application of computing that makes it possible at all.

TECHNIQUES

Ripken Learning Center

The center actually opened to students in May 1990. The center has a current capacity of 85; there are currently 65 enrolled and they are recruiting for the other 20 slots. The Ripken Center program is 6 months in length. Courses include ABE (0-4th grade level), Pre-GED (5th to 8.9 grade), Life Skills, counseling and Career Orientation. All services are free, including books, materials, and notebooks.

Before the students start orientation, most are given the Test of Adult Basic Education (TABE) by the agency placing them in the program; a life-skills test and a math skills test are generally administered by the program. In addition, clients must attend an orientation program which is given about every other week before they can attend classes. Classes are open entry/open exit. Currently, the program at the Ripken Center has an orientation group of 15-20 students; at least five students are needed to start a group. The orientation program lasts two weeks (one and a half hours per day) and students are not allowed to miss a day; if they miss they must wait and start the program at a later point from the beginning. This group experience both serves as a orientation to the Ripken Center itself, and lets learners know what is expected of them as participants in such a literacy program.

Because the students have almost without exception been in discouraging academic situations, the orientation program also serves as a motivational course. The goal of the orientation is to encourage participants to believe that they can be successful. During the two week session, students and program staff discuss issues such as interpersonal communication, stress management, the use of support systems, self-esteem, risks, past successes, and goal formulation.

After orientation, the students are assigned to classes based on their reading level. In the morning there are separate classes for those in the 0 - 2.9 grade range (one class) and those from 6 - 8.9 (two classes); in the afternoon, there are three classes for those learners who are between the 3 - 5.9 level. Classes are held five days a week, for three hours a day. About 1 1/2 hours per day are devoted to classroom work. Three days a week, the students work for about 1 1/2 hours a day in the computer lab, for a total of 4.5 hours per week). Students also receive three hours of counseling: 1.5 hours of life skills, and 1.5 hours per week of career preparation. In addition to the formal counseling, class exercises at all levels try to make maximum possible use of life skills exercises; the staff see this as one of their more important functions.

JTPA students are assigned to the program for six months and can request to stay another six months. After a year, students that want to continue are referred to another

center. Even though most learners are interested in obtaining a GED or high school diploma, most are far away from this goal. The intake process helps the student do a "reality check", and alternatives are discussed. Often the goal is to teach practical life skills and to raise one grade level each six months. Because "people draw boxes for themselves, counseling is a major focus", aimed at helping participants see beyond their "boxes".

The ability to identify learning disorders is extremely limited. Sometimes it is indicated on school records, or else it is picked up in class. There are few alternatives for those students with learning disorders but to enroll them in literacy centers. While many different types of courses are offered, the curriculum as it stands has some areas where it could be improved. According to the curriculum specialist, one of the problems may be that some of the courses offered are not integrated with each other. For example, she notes "one of the problems people have with math, is reading." She would like to aim for more integration of skills.

301 learners have left the program since its inception. Of the various reasons given for leaving, most said they left because they had attained their goal. 8% moved out of the area or changed their address, 3% left because of family problems, and 3% transferred to another literacy program. Various other reasons, such as taking a job, child care problems and transportation needs were also cited as reasons for separation. In particular, there can be problems with changing child care arrangements when a learner is promoted from the morning to the afternoon class. At first, the Ripken Center's retention rate was 50%-60%; now, according to the Director of the center, it is about 78%. The attendance now averages about with 84-85%. The increase in attendance has to do with the following guidelines that were instituted:

> Students must attend class every day during orientation. This is to get them comfortable with the class situation.
>
> During the first two weeks of classes, the students cannot miss a day. If a student misses class any day of the first four weeks (including orientation or the first two weeks of class) he/she is dropped from the program and must wait to start again. - The next six weeks, the student is on probation; he/she can be absent no more than 6 days, no questions asked; the students are "treated as adults and are expected to make good decisions about attending." Rarely does anyone miss the whole six days.
>
> Then, the students must attend 80% of the time for the next four months.
>
> Students must attend 75% overall of the time to not get dropped; 80% to complete.

A letter is sent to students apprising them of any missed days. The Director of the Ripken Center feels that "the students come to school because they like this place." A

new reward process has just been instituted; students who attend 100% of the time receive a gold star, those attending 90%, a silver star. These stars are placed on the wall in a classroom. The biggest concerns now, according to the Director, are lateness and punctuality.

Teachers expressed concerns about existing curricula, and wondered if they should structure the curriculum more around the specific tests ore more generally. One of the teachers says he encourages his students to try to get an external diploma (offered through the City public schools) instead of the GED, and he is impressed with the content and methods of the external diploma program. The external program gives the students work to take home. The learners enrolled at the Ripken Center and in the external degree program bring their work from the diploma program to the center to work on. Thus, his curriculum for the upper level class is affected by the number of students who are in the external program. He will teach them about competencies required for the external degree program and emphasize aspects of that program.[18]

For reading, he has students bring in an article, brochure, or something printed, and the class decides what they will focus on. For example, the focus may be on style, and students might look at the way commas are used. He decided to use this approach after discovering that he was not as successful in teaching reading when he selected the materials. As a part this process, he spends some time guiding the students about how to find materials to read and bring to class. He notes, "even if it isn't interesting, you can get something out of it -- what we read is less important than the fact we read." He says he likes working with students in groups but the trick is finding materials that will accommodate everyone.

Once a week the learners attend a support group where they can discuss their problems. They think it should be held at least twice a week because it is fun and relaxing and open. The Director of the Ripken Center wants to increase student participation in the center. To achieve this, they have Student Activity Day every other Friday. Through a Town Meeting process, students, staff and faculty meet to discuss ways to improve the center. Speakers are brought in based on suggestions from the students, for example the last speaker spoke about women starting their own business. Also the students have started a petition to allow eating in the center, an activity which is currently prohibited. The Director indicates that "staff need to let go of control; students need to know how to use control" He sees it as a process, a way to "motivate the students."

Trust can also be a concern with the students. They have to become comfortable with trusting a group of people who are interested in their general welfare. When students enter the program, there is a great deal of insecurity about being tested. "A lot of energy goes on in this room" says the director of the Ripken Center. "But they may test better than they think" The director at the Ripken Center indicated that nutrition is also

[18] For example, the external program puts an emphasis on percents, instead of fractions and decimals.

a concern; most students do not eat breakfast. The teachers are now giving stars to those students who have eaten before they come to school.

The ability to "access and manipulate community resources" is also a concern. For example, "identifying places to pay electricity bills" may be an issue. Currently, the students "receive information in class about community services, but do not usually use it until they leave the center." The staff encourages students to come back and "report difficulties and successes" they have had. For example, "registering to vote and using the machines" takes place outside of the classroom and, therefore, is not a competency that can be measured and tested at the center. The Director would also like to encourage students to "develop their own businesses; perhaps, start business in the center." He sees the center as more practical, community oriented, "but does not want to lose the vision of a literacy center."

The Center is still in the process of clarifying and developing its role in the community. According to the Director, part of his role entails "energizing the staff to have the vision and to look at the values of the people who come here and accept it; to get into their world without being phony." He says he discusses this vision in staff development, which is held every 12 weeks. The staff and faculty "need to be in tune with the students." The staff, according to the director, has to take the time to know the community they are working in; everyone needs the connection "to who we're working with." He thinks that everyone, students, staff and faculty "has come a long way."

Words for Life (WFL)

The classes at Words for Life are open entry/open exit. Because of there is a waiting list of eight persons, little if any recruitment is done. The Family Place will soon be moving to a new site a few blocks away, and the WFL coordinator is hopeful that he can enroll more students in the new facility. When students come to the center, they go through an intake process, usually lasting a few days. Clients are tested with much the same battery of initial tests used at the Ripken Center. Since reading levels vary from about the 2nd to the 7th grade (most in the range of 2-4), the tests can take a long time and as one student commented, are "the pits for self esteem." Many of the instructions are read to the clients. With the SORT (a reading placement test), students must read words aloud, and are then placed at a certain grade level based on the number of words read correctly. During this intake process, much of the case management is performed. Many learning disorders become apparent during intake, such as leaving the endings off words, reversing letters, and confusing similar words.

After the intake, learners are assigned to one of two groups. The morning class consists of "mature learners." These learners have been out of school for a while. The age range is between 20 and 68, with most people in their 30s. Many of these students also have learning disabilities. This problem is demonstrated in terms of improvement; this class had the least gain in terms of test scores. The attendance for this class is the best of all three, and it has less turnover. The class consists of a very motivated group

of students who are also eager to help each other learn. One student said that "she reads more to her daughter than she ever did." Another indicated that she and her husband help and teach other and then, help their children." Another says that it really makes her happy when her daughter says "Mommy, what does this say?" and she can answer. One gentleman indicated that he has "learned to pick up pamphlets; learned to read what I have a right to and what I don't have a right to; I can say I know my rights." This activity has been encouraged by the Director by asking the students to bring relevant materials to class. The average number of students attending class is about 16; the average hours attended by learners was 42, out of a possible 105.

There is also an afternoon class; these clients tend to be younger students with young children; ages ranges from about 15-22. The Family Place van transports the client and her child to the center around 10:00 am, and takes them home around 4:00 PM. During this time, the clients take part in a number of classes, such as parenting or health. In the afternoon, some of them attend the adult literacy class, while their children are cared for downstairs in the center. The attendance in this class is much more sporadic, although these students are closer to getting a high school diploma or GED because they have just recently left school. There are also some mature learners in this class, because of a lack of space in the morning class. This afternoon class is only two hours; the morning and evening classes are three. The evening class has sporadic attendance and is much more of a mix of students.

A standard classroom format is used. The morning and evening students spend about 1/3 of their time on computers; the afternoon class, about 50%. Students are encouraged to set goals and work toward them. They are also encouraged to help each other, especially in the computer lab. Topics covered in class include reading, writing, language, phonics and math.

ISSUES IN TECHNOLOGY USE

The students at both centers enjoy working on the computer. According to them, one practical application of becoming acquainted with a computer is that it will help them pass their Maryland drivers' tests, which are given on computers. An additional asset, according to the students, is that they learn how to type. Many of the students also indicate that it helps them to read. In assessing use of the computers, a teacher at the Ripken Center noted that the computers are commonly used for word processing and that he has decided to emphasize writing.

One of the biggest advantages of the computer is that students learn to ask each other for help. Both the students and the coordinator at WFL indicated that this was important. Students who had been in the program for a while will help new students in the computer lab. Students indicated that they will ask a colleague, "Can you help me with this word?" One student said, "I don't know all the words; that's why I'm here." This is a practice that is highly encouraged by the coordinator.

The learners said they can get the answers to the problems by sticking with them or by asking their teacher for help. They enjoy the fact that everyone can go at his/her own speed and that no one sees what is on the computer screen. The learners we spoke with said they enjoyed being in the program. For example, one person said "When you're doing things to improve yourself, you feel better" and "it keeps you going -- this program gives you hope." The computers are one of the main reasons clients say they come to the programs, according to the curriculum specialist: "They like to say they learned how to use the computer. But usually this means they learned word processing. This is really something positive because word processing does familiarize students with the computer. It is also utilitarian because they can have a product to show for their work when they are done."

Learners at the Ripken Center said they liked learning math and reading on the computer and some wanted to use it more often However, some expressed a frustration in terms of wanting to get to the next lesson sooner in the math program. The WICAT system is used on the computers for teaching math, reading, word processing, social studies, and typing. WICAT starts each of its content programs with a placement test. The test, according to one teacher, tends to place students at a level that is too low; this is perhaps because they are not familiar with how to use a computer when they start. Sometimes he assigns them a new starting point and sets the program so it does not require 80% accuracy. One of the problems with WICAT is that it is written for young children; thus, the programs are often not relevant to the adult learner. The reading program is weak, and WICAT offers little if any flexibility. The technical specialist would like to see other programs used in addition to WICAT.

One problem with the computer self-directed program is that when learners get a wrong answer, WICAT will immediately say it is wrong and supply the correct alternative. Most of the students want to keep trying answers until they get the right one. Also, sometimes the computer will ask students to fill in the blanks. If the material is not interesting, the students will just want to get through it as quickly as possible. If the teacher is there, it enables the students to focus more on the process and not just getting the right answer. Generally, the interest level for the reading programs is low, according to one teacher. He does think a few of the non-WICAT programs for reading are worthwhile for the 3rd to 6th grade level, in particular "Reading in Me" and "Reading Rabbit"; these programs offer a nice alternative to the WICAT material.

There are other types of problems related to computer-use; sometimes the printer fails to work, or the teacher may be trying to fix the printer when a student needs help. Some teachers are themselves still trying to become really familiar with the computer, and thus cannot offer all the help that the students feel might be needed. The students generally agreed that they could use another computer teacher.

GENERAL ISSUES

The Director of Baltimore Reads has several things she would like to accomplish in the upcoming months. She wants volunteers to do follow-up with learners, and would like to start an alumni group. Another idea is to let former students come back to use the services. She would like to also start a newsletter for new readers. She also thinks that the Baltimore Reads program could be duplicated regionally or statewide. To improve the program, and in particular to discover what does and does not work, to increase the ease with which the program could be duplicated, she would like to hire an evaluation specialist. Additionally, she would like to disseminate some of the technology developed by the program. "We have software we need to get out; we could pilot technologies," she says.

The Director of the Ripken Center foresees that the Ripken Center will be at least 50% different in the future, with a much stronger community focus and access to other community social services. To date, the Director sees a lack of community partnership with the immediate neighborhood. He feels that there needs to be a more of a direct linkage with the community. The lack of a partnership, he feels, may be the result of a lack of knowledge and trust by the students available social services.

The future is likely to bring reduction of JTPA funds and more private funding. This could be positive. JTPA funds are rather highly constrained, and reduced "strings" attached to center money might enable new projects, such as an intergenerational program, to be planned. In the future, the Ripken Center sees itself as becoming "an incubator for all adult literacy centers." The goal would be to work toward making the Ripken Center the best of all adult literacy centers, and a prototype for all the East Coast. It will offer motivational approaches that will help retain students. Its Director knows that the "center can't be all things to all people," but he does see it as offering "the best package of adult literacy that anyone has ever seen."

Staff also believe that the Ripken Center should, in the future, be more community oriented, and preferably be staffed by people from the neighborhood. Programs could then be tailored to fit the needs of the community. The center could be able to generate its own income, and people could provide labor in exchange for being able to learn skills. Thus, the community could be able to see the center as a place they can be a part of. One problem with the center, the Director believes, is that the students who attend do not necessarily live in the community. He would also like to see the direction of the program be determined by the students. One problem that exists now is that many of the learners are required to attend. He believes it would be better if they attended on their own.

As far as the technology goes, staff would like to find something to replace WICAT. One solution could be to look to the local businesses and assess what they require of workers. The program could have an employment track that would be tailored to meet

the needs of local business. In general, they like the idea of encouraging entrepreneurship and think some training could be offered to encourage that.

There needs to be more integration of skills; there appears to be no software currently available that can achieve that goal. The integration of skills has to be planned by teachers and students. Also, there is a problem with the transfer of skills. For example, the learners may be enrolled simultaneously in a life skills class and a math class; the two subjects are seldom integrated, and if so it is only because the teachers go out of their way to coordinate with each other.

For the Words for Life program, the Baltimore Reads grant ends in June, and there is a need to secure additional funding. Grant applications have been submitted to a number of agencies, but due to economic conditions, these agencies are unsure of what funds will be available. Some of these applications include funds to hire another instructor. There is a hope to also purchase updates for the CCC computer program. The coordinator hopes that the support of Baltimore Reads and the Mayor's Office will influence more funding sources to commit to WFL.

The Director of Baltimore Reads suggests that the problem of literacy requires "a money-driven solution"; more federal funding are seen as needed. "We know how to get results and we know how to build partnerships that work but we need the money, particularly in this recession." Also, she would like the regulations to be changed to allow learners to be able to stay in the program as long as it takes them to achieve their goal, instead of the current JTPA six month limit. Other Baltimore Reads staff would like to see a collaborative learning network, where the students could write questions and the instructors could interject comments. The computers could be accessed 24 hours a day, and the learners could be monitored. She would like the government to fund computer networks for this kind of collaborative learning.

As the Director of the Ripken Center said, "There is a need to see life as a whole and not take social issues in isolation. Literacy is prevention; it all starts from the written word. There is no way to attack substance abuse in brochures if people can't read." He indicated that it is "not fair to mandate [certain activities of individuals], if there is no light -- there are no jobs and people need to support their families." People know that there will still may be limited opportunities even after attending literacy programs. Congress needs to "create an environment that says that the community wants to help you; it needs to be quick, less bureaucratic and efficient." And the community needs to be held responsible. He says that the students should "demand good service, of the Ripken Center and of the community." As far as the policy goes, he thinks "the solution will come from below not above, but Congress can help by not standing in the way. Cutting back on welfare will make problems of everyday survival more acute. Social services should not be cut. Real change will need to come from the bottom."

In summary, then, the experiences of the Baltimore adult literacy projects indicate both the great value of central attention to technology as well as administrative

relationships, and the difficulties and costs of managing such programs. Ultimately, the successes achieved by Baltimore Reads and its component projects are dependent on a fragile web of political alliances, funding interrelationships, and cobbled-together computer systems that are made to work by dedication and hard work far more than by the inherent capacities of the technology. Here, as in other sites, it is unfortunate that we seem unable to develop tools that are worthy of the capacities of the individuals who use them to learn, teach, and manage.

GLOSSARY

BCLC:	Baltimore City Literacy Corporation
BRI:	Baltimore Reads Inc.
OED:	Office of Economic Development
WFL:	Words for Life

CENTER FOR TRAINING AND ECONOMIC DEVELOPMENT

ADULT LITERACY PROGRAMS AND SERVICES FOR THE GREATER CLEVELAND AREA AND CUYAHOGA COUNTY

Metro Campus Adult Learning Center
Cuyahoga Community College2900 Community College Avenue
Cleveland, Ohio 44115

Euclid Adult Learning Center
Cuyahoga Community College
1001 Euclid Avenue
Cleveland, Ohio 44115

Multi-Media Community Literacy Program
Garfield Heights Community Center
13455 Dressler Road
Garfield Heights, Ohio 44115

Job Readiness Program
NorthEast Ohio Pre-Release Center (NERPC)
2675 East 30th Street
Cleveland, Ohio 44115.

VIGNETTE

The current director at the Metro Campus Adult Learning Center shared with us some of his reflections on the overall mission of their adult literacy efforts, as follows:

> "Having a job is true empowerment. Our adult literacy efforts make our clients self-sufficient by increasing their competitiveness in the job market. We are judged not by the number of adult learners finishing our programs, but by the number getting jobs. And this is the real challenge. Our 87% job placement rate is something we feel proud about. This is not to mention our devoted teaching team, state of the art computer assisted instruction technology, our committed clients, and the full support we receive from the CCC administration. Of course one needs to solve some of the operational problems that arise from the inevitable conflicts arising from operating in an environment like CCC whose main mission is to confer credits and degrees".

OVERALL DESCRIPTION

METRO CAMPUS ADULT LEARNING CENTER

Administrative Control	Community College
Organization Structure	Community College
Budget	
Type	Job Training Partnership Act (JTPA)
	Towards Employment (city social services)
	Industrial Training and Testing Center (private source)
Staffing	
Teachers	Four
Technology Specialists	One
Curricular Content	
ABE	10%
GED	90%
Clients	
Total	270
Race	
Sex	
Age	
Recruitment	
City of Cleveland (JTPA)	approximately 100%
Retention/Evaluation	
Job placement	not available
Technology	
Hardware	
Type	Tandy PCs (networked)
Quantity	31

Other	Laser discs
Installation costs	$155,000
Software	PLATO
Installation costs	$37,000

EUCLID ADULT LEARNING CENTER

Administrative Control	Community College
Organization Structure	Community College
Budget	
Type	Job Opportunity and Basic Skills Program - JOBS (State Department of Human Services)
Staffing	
Teachers	Three
Technology Specialists	Two
Aides	Two
Tutors	Four
Curricular Content	
ABE	statistics not available
Basic Skills	statistics not available
GED	statistics not available
Clients	
Total	125
Race	
African-American	85
Latino	8%
White	7%

Sex	
Female	95%
Male	5%
Age Range	21 - 52 years old
Recruitment	
JOBS Program	approximately 100%
Retention/Evaluation	not available
Technology	
Hardware	
Type	IBM PCs (networked)
Quantity	31
Other	Television, video
Software	Computer Curriculum Corporation, WASACH

GARFIELD HEIGHTS COMMUNITY CENTER

Administrative Control	Community College
Organization Structure	Community Center
Budget	
Start-up costs	$40,000
Type	State of Ohio, City of Cleveland
Staffing	
Teachers	Two
Technology Specialists	none
Aides	Two
Tutors	Two
Curricular Content	

ABE	45
Basic Skills	40
Clients	
Total	85
Race	
African-American	50%
White	50%
Sex	statistics not available
Age Range	16 - 81 years old
Recruitment	
Word of mouth	approximately 100%
Retention/Evaluation	not available
Technology	
Hardware	
Type	Television, video
Quantity	1
Software	Kentucky Educational Television (KETV) - Learning to Read Tapes

NORTHEAST OHIO PRE-RELEASE CENTER

Administrative Control	Community College
Organization Structure	Prison - Pre-release Center
Budget	
Type	State Department of Rehabilitation and Corrections
Staffing	
Teachers	Two

Technology Specialists	None
Tutors	One
Curricular Content	
GED	100%
Clients	
Total	684
Race	
African-American	66%
White	34%
Sex	
Female	100%
Age Range	21 - 54 years old
Recruitment	
Mandatory Pre-release Program	100%
Retention/Evaluation	
GED pass rate	81%
Technology	
Hardware	
Type	Tandy PCs (networked)
Quantity	21
Software	PLATO

THE UMBRELLA PROGRAM[1]

HISTORY

Adult literacy improvement in the Cleveland area has a long history. In 1984 the Greater Cleveland Roundtable and local corporate and family foundations commissioned a Communications Skills Study Group (CSSG) to study the problem of illiteracy in Greater Cleveland (Cleveland and Cuyahoga County) with the object of making specific recommendations for action. Members of CSSG included a judge from Ohio Court of Appeals, the then Superintendent of Cleveland Public Schools, a former Superintendent East Cleveland City Schools, and a Director of local Community Affairs. In total GSSG was made up of thirty-seven community leaders from all walks of life. The President of Cuyahoga Community College (CCC) added impetus to the project by offering staff, space and other resources to the Study Group.

The Group's findings were staggering. About 200,000 adult citizens of the county's one million plus people above seventeen years were illiterate. Forty-nine percent of adults in the city of Cleveland had not completed high school, compared to the national average of thirty eight percent. More than 130,000 adults in the county had completed less than nine years of schooling. The Cleveland Public Schools' student dropout rate was double the national average, and nearly fifty percent of the students who begin grade nine never finished high school. In Cuyahoga County alone, the number of school dropouts and unskilled graduates increased by more than 5,000 each year. On average, one out of every six students enrolled became absent from school. Moreover, over twenty-six percent of Cuyahoga County high school graduates and fifty-one percent of Cleveland graduates who entered State supported colleges and universities had to sit for remedial English classes, compared to fifteen percent requiring remedial classes from the rest of the State.

The social costs and inefficiencies of illiteracy in the Cuyahoga County economy alone were estimated to be $2 billion per annum. This resulted from losses in productivity, welfare payments, delinquency, serious crimes, and unrealized tax revenues. The situation contributed to declining state economy, its inability to compete nationally and internationally, and the chronic unemployment levels.

CSSG had to come out with specific policy recommendations which should be taken to improve the situation quickly. The goal was to reduce adult illiteracy, eliminate basic skills deficits in high school youth, and improve communications skills among the work force. Such a momentous task required the commitment and participation of all institutions (industry, business, religious, family) in Greater Cleveland. CSSG's report, entitled "A Commitment to Literacy" called, among other things, for:

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[1] Given the complexity of this case, our format here is slightly different. This section presents the overall background of the different sites. We follow with separate descriptions of the different programs, reserving "General Issues" for a common section at the end of the case.

adoption of specific communication standard and rigorous enforcement of standards for promotion and graduation

removal of barriers to effective teaching by using modern technology to complement traditional methods

development of programs and curricula to serve people with elementary reading skills, but not ready for high school work or technical training,

delivery of services at a variety of comprehensive literacy centers serving everyone from non readers to citizens preparing for the high school equivalency test (GED)

expansion of learning sites located near those in need

development of opportunities for parents and children to learn together

continuation of general assistance during periods of training by providing child care, transportation, and employment counseling for literacy students

The recommendations of the CSSG formed the blueprint for the literacy efforts in the Cleveland today. The sites we visited are all institutions created to implement the various recommendations of the CSSG.

ORGANIZATION AND STRUCTURE

The four sites described in this case are among nine adult literacy programs operated under the auspices of the Center for Training and Economic Development (CTED) of the Cuyahoga Community College. The Executive Director of CTED reports to the President of CCC. Under the Executive Director is the Dean for Training and Economic Development, who directly oversees three Assistant Deans and three Directors responsible for various programs. The Director of Literacy and Educational Services presides over the Metro Campus Adult Learning Center, the Garfield Heights Multi-Media Community Literacy Program, and the Euclid Adult Learning Center (three of the four in our sample).[2]

CTED's mission is to serve the people of the Greater Cleveland area by "strategically responding to the growing employment and training needs of the community". CTED plays the role of coordinator and major contractor for specialized adult literacy programs needed by various institutions and individuals. Once a contract has been secured, CTED will sub-contract it to one of the sites and monitor its execution. The

[2] The Director of the fourth program, the Pre-Release Center, reports to the Dean directly.

different learning centers form a sort of "commonwealth of independent sites", each of which operates autonomously under CTEDs' overall direction. This "commonwealth" is united in its missions and draw its strength from shared experiences. The staff know each other very well. Maintenance of their hardware is provided from a single source (the Computer Center at CCC), and there are plans to tie together all the centers in a Wide Area Network so that they can share software, databases, and communicate electronically.

The major funding for CTED programs and services comes from JTPA, the Ohio State Department of Education, and the Ohio Department of Rehabilitation and Correction. Other funding sources include the Ohio Board of Regents, the Black United Fund, NASA, the U.S. Department of Energy, the Cuyahoga County Office of Employment and Training, the Northeast Ohio Regional Sewer District, the Cuyahoga Community College Foundation, the U.S. Department of Justice Affairs, the Ohio Department of Youth Services, and the U.S. Department of Education.

In the remainder of this case, we profile each of the sites in turn, and focus on instruction delivery, assessment of the constituencies involved, and technology usage. We conclude with some general observations drawn from the collective experience of all the Cleveland sites.

THE SPECIFIC SITES

METRO CAMPUS ADULT LEARNING CENTER (MCALC)

VIGNETTE

Sarah admitted that she had been out of school for many years and had initially been afraid to come to MCALC and be among young people in a learning environment. What really prompted her to come, was that her daughter had signed her up to be a Social Studies tutor at her school. She had been afraid to go as she could not read well at all. However, after picking up her courage, she found tutoring was easy, as the teacher gave such clear direction. The whole situation however, made her decide that she wanted to be able to help her daughter more effectively, so she went over to Industrial Training and Testing Center to be tested for the MCALC program. Originally she was tested at a 6th grade reading and math level, after having been in the program for only 5 months, she was ready to take the GED. She was looking forward to a job using her computer skills. She intended to go to Vocational School to become a Medical Assistant, as CCC has a 2 year program. Her children are encouraging her to aim for that. She had never touched a computer 5 months previously.

PROGRAM DESCRIPTION

HISTORY

In 1984, the Cleveland Area Private Industry Council requested that CCC develop an adult learning center using state of the art technology to support job training programs, in line with the recommendations of the CSSG. MCALC was established the following year. Its new Director had been most recently the Director of the Comprehensive Employment and Training Act Programs (CETA/JTPA) for Cuyahoga County, a position he had held for three years.[3] At CETA, he designed and implemented computer-based remedial programs for CETA enrollees. Before that, he had worked for the city of Cleveland for six years.

MCALC opened its doors in April 1986. Between April 1986 and June 1991, 1820 students have passed; of these, 87% passed their GED exams and got jobs. About 38% of students enrolled in MCALC subsequently enroll at CCC for Associate degree courses. As long as students remain actively enrolled in the program, the program is absolutely free to them -- including the actual GED test at the end.

RESOURCES

MCALC is located on the fourth floor of the CCC Metro Campus. The location of the MCALC facilities on the CCC campus creates an atmosphere conducive to adult learning. Sharing the same library, cafeteria, and other public spaces with the Associate degree students has made some of them feel that they could make it through the GED exam and enroll for a degree.

There are five fulltime teachers at MCALC: a Lab teacher, a Specialist in Learning disabilities, two classroom teachers and a technical specialist who also teaches. All teachers have a minimum of a BA degree and are certified by the State of Ohio as teachers of Adult Education. There were about nineteen tutors in 1985 when the program began; now there are nine (all volunteers). Tutors have various backgrounds: retired business people and retired teachers predominate. When they start, tutors take part in an informal screening in a three hour session on a Saturday morning, led by an outside consultant who is a national expert in adult literacy. In this session, they are told about the ethics of tutoring, and given practical tips. Some tutors help in the computer lab, some in the classroom. They work with the teachers, and sometimes stick to the same students they initially help.

There are three sources of support for MCALC:

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[3] In this position he designed and implemented a PLATO-based learning center --- a center that won national recognition.

city funds, primarily through JTPA, which make the program free to students who are welfare recipients.

Towards Employment (TE) - a city funded support services agency that makes funds available for students with problems such as child care, housing, winter clothing, etc. The Student Career Counsellor will meet with students who are having problems and will then get money for them from TE. TE will provide money to pay a family member to look after the enrollee's child in the home, if it is impossible to get into a child care center. The student can select the best home care provider and TE will pay for it. TE will pay for a student who has eye care or dental problems-- in fact will provide money for most needs that would otherwise cause the student to stop attending the ALC. TE also gives the student a stipend of $4/day as a "carrot" to motivate attendance. Students punch in and out with time cards, and every two weeks they then get a $40.00 check which covers the cost of a bus pass and leaves a few dollars extra.

Industrial Training and Testing Center (ITT) - the Career Center downtown that acts as the sole referral agency for the JTPA program and CCC. MCALC does no recruiting directly -- if a student goes first to MCALC, they have to send them back to ITT to be tested and assessed first. ITT recruits students in many ways -- TV, radio, newspaper ads, phone calls. ITT does all the necessary paperwork for the city to establish the records for the JTPA program and assigns a case worker to each student in the program. The ITT case worker keeps in touch with student progress via MCALC records. Unless students are not actively attending classes, however, the case workers do not get involved in their day-to-day activities.

Unfortunately, JTPA funding is dwindling, and MCALC is now never sure exactly how much funding they will receive in a given year. They have put themselves in a situation where they have been forced to start up classes without being sure if and when they would be reimbursed and for how much. In the past, the college would get the city funds at the start of the year; now they get it as they place students in jobs. There is also some tension about students who want to go on to college rather than go to work upon graduating. The Student Career Counselor said this had not presented much of a problem since those students were helped also to find part-time jobs and thus they could be counted as "successes" in the program.

As noted above, the JPTA program does not enroll non-readers. These have to go through other remedial programs such as that at Garfield Heights Community Center or the Euclid Adult Learning Center (see below) and upgrade up to 4th grade level before gaining admission to MCALC. As of April 1, the State is cutting its General Assistance (GA) welfare money -- this means that 40,000 people will no longer receive welfare checks. There are currently 37 GA recipients at the MCALC; staff there are working to place them all in some kind of jobs so they will have something when they leave MCALC.

In the past, CCC would generate other income for MCALC independent of the city. However, the current college administration does not favor that strategy; the Director feels too dependent on the city for its operating revenue.

CLIENTS

The majority of the clients in both the Basic Skills Classes and GED Classes are receiving Assistance for Dependent Children (AFDC). There is a high percentage of single mothers in all the programs. They tend to be unemployed and economically disadvantaged. The City of Cleveland Department for Human Resources contracts with the Industrial Training and Testing Center (ITT) downtown to screen and assess eligibility of welfare recipients. If ITT tests them at a grade level of 4 or above, they send them to CCC to enroll at the MCALC.[4] CCC gets about 270 students per year in this way.

Students can be referred from ITT to either of two programs:

> **Remediation only** (only about 10% of students at MCALC) -- these students usually have a GED or High School Diploma already but lack specific practical skills. In those cases ITT assesses the student, and works out an Employability Development Plan (EDP), intended to take the students from whatever level they are now to a level where they can be employed. ITT assesses the student's employability in eleven areas including math skills, reading, interviewing skills, communication, presentation, and draws up a competency assessment, based on students' goals and apparent talents. The student then enrolls at MCALC to make up deficiencies in any of the competencies judged lacking by ITT. By the end of the program, MCALC has to make sure that competency has been gained in all eleven areas.
>
> **GED preparation** (90% of students at MCALC): Students need to work on all five components of GED: math skills, writing skills, social studies, sciences, literature and arts. When the students are considered ready, they take a placement test to become advanced to the GED grade level (8th grade). Students work at GED preparation until they achieve an average of 50% on each of the five GED components. As the national average to determine eligibility to take the GED is 45%, students are virtually assured they will pass the exam. Once a student enrolls for the test in any of the GED components, that person has six weeks to take the other four tests. They come in throughout that period to practice and drill in the lab.

MCALC provides literacy services to those students determined eligible by ITT (reading level greater than 4th grade). The number of students therefore varies depending on

[4] Those who test below this level are referred to other, largely voluntary programs.

the contract with the city. The year starts somewhere around September, although as funding as been such an issue this year, they had to push the start date back.

INSTRUCTION

APPROACH

Teachers at MCALC have to be flexible in working with the adult learners. Students can easily tell if a teacher does not really care about them. When recruiting teachers, MCALC does not just look at paper credentials. All adult literacy personnel are required to have special human understanding skills; they are dealing with people with different needs, who need the sensitivity to be given a second chance. One of the teachers noted that she was dealing with three women all of whom had attempted to commit suicide. She felt a special responsibility for those adult learners.

According to the teachers, students benefit very quickly from attending MCALC. Their self-esteem becomes much stronger, evidenced by the change in their attitude and behaviors. One teacher noted that many change the way they dress, carry themselves, and their behavior with others after they have been in the program for a while. The Center holds an Awards Ceremony once a month to reinforce positive behavior and encourage the students. They give all kinds of awards, such as for best dressed, best attendance, best effort, best progress, etc. The students appreciate the regular awards ceremonies, and feel this is a strong motivator to encourage progress. As the awards are for many different achievements, students feel that they all have a chance to get an award and do not feel in competition with their classmates.

One woman said she hates to miss a day at school and looks forward to Mondays for the week to start off again. The fact that classes are held mornings means that students can take a part time job in the afternoon if they want to. Having classes five days a week for four hours was seen as one reason for such apparent progress.

Classes are from 9:00 am to 1:00 pm every day. Half of the time students work on GED preparation using PLATO software in the Computer Lab; the other half is spent in a traditional classroom setting. Each student punches in and out on a time clock every day. The overall philosophy of MCALC staff is that the students are all adults, and as such are responsible for their own choices and making the most of their opportunity. They are expected to be at MCALC every day, and are supposed to call up and explain absences.

Support services are also much appreciated by the students. One of the teenage mothers is able to pay her mother to look after her baby while she is at class in the morning -- a situation that has made her mother very supportive of her efforts also. All the students get bus passes and receive a little extra stipend. When asked what they felt about punching in and out on a time clock each day, they said they liked it, as it

gave them a sense of belonging to a "real system". One of the younger mothers said that being at home with a child each day, and having no access to other opportunities made her feel "brain dead"; since she's been at MCALC she's been "rejuvenated". One of the older women said she enjoyed carrying her books to and from a college campus -- she "felt like a college student".

TOOLS AND TECHNIQUES

The Center has 31 Tandy microcomputers, 26 of which have no hard drives. All micros are linked to one of two Novell file servers which contains the PLATO courseware. Table 2 below shows the hardware and software costs for the period between April 1986/July 1992. The initial capital outlay was $ 155,467. This included the purchase of PLATO and WICAT systems, IBM PCs and initial installation and maintenance. On February 1989, there was a complete upgrade of the MCALC Computer laboratory to the present Tandy PCs. The IBM PCs were transferred to a lower-intensity "Training in Office Procedures and Skills" program.[5] In addition, the program "Windows" and laser disks for interactive videos were recently procured. The present PLATO courseware was bought in November 1988 .

The technical specialist praised the software support given by the Roach Corporation (the developer of PLATO). Hardware maintenance services are also excellent. Out-of-warranty equipment is maintained by the CCC Computer Center upstairs. Should there be any emergency, a hot line can be used to call Roach.

The computer lab opens at 7:30 am and closes at 5:00 pm. Students are allowed in between 8:30 am and 4:00 pm. Students in the 4th-7th grade levels are taught Adult Basic Skills. When a student is ready, s/he takes the placement test and is advanced to the GED preparation level.

Two hours per day are spent in the computer lab and two hours in a classroom. The progress of each student is monitored through a built-in program that accumulates student points as and when the student decides to take the progress tests. Usually students feel comfortable with the technology after getting them started. If a student wants to have a copy of something, they can tell the teacher who will then print it out for them. However, for the most part, students take notes and work through the lessons by writing them in their own notebooks. Four of the five microcomputers with a hard drive have CD-ROM drivers and interactive video capabilities. Students can use those to learn mathematics but those options have not been used yet. Student progress is tracked by the PLATO system and can be assessed readily by the teacher.

Classroom instruction is based on traditional methods of paper and pencil. Both the classroom and computer lab teachers think that PLATO is useful to reinforce classroom instruction and vice versa.

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[5] This is another of the nine CCC programs; we were not able to visit it.

EVALUATION PROCEDURES

The end result of both programs (Remediation and GED exam preparation) is job placement. The program operates on "performance based" funding. The city has recently (two years ago) switched its definition of successful completion to mean that the graduate gets a job at the end of the program.[6] Because of the City's new criterion for success, MCALC has created a new full-time position -- "Job Placement Specialist" -- to concentrate on getting students in touch with job opportunities. Right now the management of MCALC is working with the Computer Center to see the possibility of getting connected to an on-line job listing data base. The Student Career Counsellor would like to set up access to data bases that allow students to do searches of colleges -- entry requirements, jobs, skill requirements, hours, rates of pay, etc.

ISSUES IN TECHNOLOGY USE

Students like the fact they can work in privacy at their own pace, and feel no pressure either from classmates or from the teacher. As one student said "The computer keeps you from getting scared...from being embarrassed." Another student described the computer as being "like a private tutor". One person said she felt she liked the peace and quiet of her booth, working at her own pace, getting help from other students or the teacher if she needed it. Another woman said she felt she was learning a job skill just as fast as she was learning to read. Some students also mentioned they like the computer graphics, and the fact that the computer will say "Great Job Sandra" and display stars and fireworks on the screen when Sandra gets something correct.

One young woman said that it was the idea that she could work in the PLATO lab that finally made her decide to come to MCALC. This woman's reading and math levels have gone from a 7/8th grade level to a 12th grade level in 2 1/2 months. She is taking the GED next week.

The computer lab instructors felt that documentation and flexibility provided by the PLATO system provide invaluable assistance for instructors to monitor the performance of students. For instance, the current technical specialist has helped to change what he considered to be unacceptable bugs in PLATO. Taking advantage of the flexibility of the PLATO architecture, it is possible to modify the system so that students cannot jump to a higher level module without first completing a lower level module. The system now indicates with an asterisk a module completed at first attempt and with a diamond any module that took longer than one session to complete. Another modification has enabled teachers to access complete reports on student performance whenever they need one. In the past they had to run student reports overnight.

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6 In the past, passing the GED was the "success" criterion.

Despite the enthusiasm, the computer lab teacher mentioned that PLATO should have an optional feature to time students' responses to questions. She felt that while timing would not necessarily be best for all students, it will provide a more realistic pretest of GED testing. She also pointed out that giving students individual attention can be more difficult in a lab than in a more traditional classroom. The lab itself is large and all students have their backs to the teacher, making it hard to make eye contact with the students when one needs help. Also it seems harder to know students, even their names, in a lab setting.

Incorporating technology into an adult learning program presents a challenge for administrators. The onus is on them to identify the instructional strategy, and to find the best courseware to support that strategy. "It's hard to determine what's best before you've had a chance to try it" -- and investments in information technology are expensive especially if you make a mistake!

One male student commented that although the computer was great, computers could never replace human teachers. Many students agreed with this comment. One female student said that a computer could not "give you a hug", and that without a clever, caring teacher there the computer wouldn't be nearly as good.

Future plans include:

establishing a 9600 baud Wide Area Network to link all the MCALC in the Greater Cleveland area. This idea is supported by CCC, software suppliers and the respective adult lerning centers all of which stand to benefit from the arrangement.

exploring remote access to the lab and the courseware from off-site locations. The goal would be to reach other populations, e.g the home bound, and those who have insurmountable child care problems.

expanding the use of television to broadcast a literacy program that would be developed in-house. Currently the local North Coast Cable Channel shows GED courses on the television, reaching 70,000 homes in the Cleveland area. If the MCALC could create its own tapes for broadcast they reach an expanded audience.

purchasing the Spanish version of the Kentucky Educational Television Tapes to meet the growing need to reach the Spanish speaking population.

expanding workplace literacy efforts such as the North East Ohio Regional Sewer District program, reaching more business clients and also generating more money for MCALC.

investigating how the Center's resources can be used to support the administrative and other management needs such as monitoring student progress and providing analyses. The specialist noted that: " ... currently, we are making progress but why are we making progress we don't know".

In order to make headway on their expansion plans, MCALC needs seed money. The Director is hoping that the new Literacy Act, which targets the 0-5 grade skill levels, will provide some potential funding.

EUCLID ADULT LEARNING CENTER (EALC)

VIGNETTE

Doreen and Winnie, two of the traditional classroom teachers at EALC, feel that too much emphasis is placed on time in the computer lab. They felt that " students need more classroom time as it is harder for them to get lost in a regular classroom setting. Just go around in any computer lab session and you will see students just sitting in front of their computers pretending to do something when they don't know what they're supposed to do.

Computer labs should be supplements to the classroom learning, not vice-versa. Students with problems with the traditional class methods should be the ones to be referred to the computer lab to get more drilling. For instance if a student is having problems on a particular kind of math, then s/he should go to for lab instruction on the area. The lab should also be used for testing the students."

Neither Doreen nor Winnie wanted to incorporate computer technology more into their classroom instruction. They feel they have more curriculum design flexibility without the computers. They wouldn't want to have to work with courseware packages that "dictate what you do with your students. Computers are just good 'extras'. They help increase student interest, which helps retention levels. They help motivate students as they are new and different. They are only teaching tools".

PROGRAM DESCRIPTION

HISTORY

This program started in February 1991 at the CCC's Metro Campus as a "spinoff" from MCALC, to serve the needs of a wider group of clients. In December 1991, it moved from the Metro campus to its own space, forming the Euclid Adult Learning Center (EALC). Unlike MCALC where participants are all supported by JTPA, EALC clients come both from the city and the county. Most of the clients are referred to EALC by the County Department of Human Services (DHS) of the Greater Cleveland area. EALC

also carries out outside testing for other agencies, as ITT does for MCALC. For instance, if DHS needs to assess a clients for eligibility of their benefits, they could refer the client to the EALC to be tested, even if that client may not subsequently attend EALC.

The Program Coordinator of EALC reports to the Director for Literacy and Educational Services at MCALC. However, this site operates rather autonomously.

Resources

The building that houses EALC also houses several businesses. The center has three fulltime teachers, two computer training specialists and two institutional assistants who conduct the tests, workshops, study skills sessions etc. EALC shares the services of a learning disabilities specialist who also works part time at the Metro Campus. Currently, EALC has four tutors, two paid and two volunteer. One tutor is a student at CCC, and receives some money for her work. The other paid tutor is a graduate of the program, and works there part-time. There are efforts underway to recruit up to four more tutors.

EALC is funded on the basis of the services they provide to their clients, unlike MCALC which is reimbursed on the basis of the number of students who finish the program and get employed.

Clients

Participants in this program are welfare recipients, mainly receiving Aid to Families with Dependent Children (AFDC), who are supported by the Job Opportunities and Basic Skills (JOBS) program.[7] Once a client is referred to EALC, a JOBS case manager is assigned to the client. The instructors at EALC try to maintain fairly close, cooperative relationships with the JOBS case manager that each client is assigned to. They have an open door policy for case managers to come and visit their clients. The oldest client in the program is 52 years; the youngest 21.

INSTRUCTION

Approach

All teachers have the flexibility to design their classes as they like. Classroom teachers can also use the computer lab for special purposes. Teachers meet once a month to discuss client needs, progress, and problems. Based on student feedback and discussions in staff meetings, curriculum emphases are set. For instance, it has been

[7] Also called "Welfare-to-Work", this is yet another variant of welfare reform initiative aimed at helping clients acquire skills to enable them to get off welfare and get to work.

noted that failure on the GED is usually attributable to math difficulties. To correct this, the teachers are putting more emphasis on math training. Technically the program lasts 36 weeks, but as long as the client is making progress with courses, there is little pressure to maintain the schedule.

Officially, the center operates on a open-entry/open-exit enrollment basis, although it does try to recruit clients to begin at the same time to help maintain coordination of instructional efforts. Intake schedules are set in cooperation with the DHS; approximately every 4 weeks EALC enrolls another cohort of clients. However, intake intervals can range from three to six weeks apart. There are currently about 125 clients enrolled at the center. The actual amount of space available in the building restricts intake size -- there are usually about 18 per class.

The program is structured in two sessions, one in the morning and one in the afternoon. Classes are from 8:30 am to 12:00 pm and from 1:00 pm to 4:30 pm. The computer labs are open to all students during lunch (from noon to 1:00 pm) on a first-come-first -served basis. Within each session, the instruction time is divided more or less equally between computer lab and classroom. For example, half the clients in the afternoon session will be in the lab from 1pm - 2:30pm and in the classroom from 2:45pm - 4:30pm ; the other half of the afternoon clients have the reverse schedule. State regulations require that attendance records be kept; client attendance is monitored via a computerized time clock. Clients seem to like the time clock; it makes them feel important and "part of something".

EALC emphasizes a fairly strict code of behavior. Clients must attend school and show progress if they are to continue to get assistance money. The case manager assigned to each student is given periodic reports by the EALC counselor on the performance of the student. Three days absence within one month is grounds for termination of a student. Five days consecutive absence at any time leads to termination from the program without prior notice.

Clients are tested on admission and assigned to one of three types of learning programs :

> **Literacy Project**: a multi-media literacy program, funded by the State of Ohio DHS. This program is for the lowest-skilled clients (0-4.9 grade level). The state pays for all the materials--computers,tapes, etc.
>
> **Basic Skills class**: For the middle level skills (5-7.9 grade level).
>
> **GED exam preparation**: For clients planning to take the GED, with grade levels between 8 - 12.

In the GED preparation program, the large numbers of students presents a problem for the teacher. One of the teachers has an average of ten people per class, but they can

be anywhere between 8.0 and 12 levels on any of the 5 sections in the GED course. This makes it very difficult to give individualized help. The teacher tries to split the class up into two or three groups of people of comparable skills. This way she can at least target her teaching to some degree. The GED success rate is good; of the 21 who have taken the GED so far, only three have failed -- all in the math section. Math skills seem to be the hardest for most clients to improve.[8]

As at the Metro campus, clients may not enroll to take test until they average fifty percent in each of the five components. This helps ensure a high pass rate. The students who fail are recommended to another program -- usually a night class that teaches GED exam preparation. There are some students who graduate from one level to the next, but this does not always happen -- there are some who will never pass the GED. Progress is evaluated every twelve weeks.

Tools and Techniques

In general the use of computers is very similar to that at MCALC. Instead of PLATO, however, EALC uses the Computer Curriculum Corporation courseware.[9] This system is largely similar to PLATO, although it differs in that it requires the students to answer the questions within a specific amount of time. One of the teachers felt that this could create problems for some students, and felt the teacher should be able to disable that feature at the discretion of the learner or instructor.

The multimedia program for the very low level readers (0-4th grade) makes use of the Kentucky Educational Television (KET) tapes. The tapes are used by the traditional classroom teacher, not as part of the computer lab time. In the computer lab with this group, the teacher concentrates on improving math skills. The teacher pulls clients now and then from class, either alone or in groups, to watch the KET tapes. She has students work with the tapes when she thinks it will help them, rather than as a set program. Students will usually work in a small space at the back of the room with headphones, as there is a serious lack of space at the Center.

In the KET tapes famous characters are used to present the material. Those include celebrities like Wally ("Famous") Amos and Bruce Jenner. Those characters present high motivational and empathetic messages since they were school dropouts as well. The student is given a workbook that has all the lessons and exercises that accompany the tapes. The workbook looks more like a regular newspaper than a traditional student aid. The idea is that students will feel good about the workbook and not be embarrassed to be seen with it. Student briefly scan the appropriate pages before viewing the video for the day's lesson. To encourage students to pay close attention to

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[8] The teacher speculated that math may have been most ignored in high school, because it is the hardest to teach in the typical overcrowded classrooms in inner city areas.

[9] This system was also used in one of the Baltimore sites.

the material presented on the tape, they are not allowed to write in the book until the tape is over.

The video tapes stress "proper" English pronunciation. The students see the world on the screen, hear it and try it themselves. Every fifth lesson is a review. Students may skip lessons if they feel comfortable with the material. The teacher's role at each stage is to monitor and assess progress, providing assistance as needed. After they have viewed a lesson on the video, students can either work through the lesson in the workbook at the time or take it home to do it later.

In either case, students can dial up the " Telephone Tutor" for help with the lessons. There is a phone in the classroom itself with instructions about how to use it to get the lesson the student is interested in. However the 1-800 number can also be accessed by the students from any touch-tone phone free of charge. Ninety-six callers can access the system at any one time. The student opens the telephone tutor workbook (different from the video workbook) to the page corresponding to the most recent Learn to Read television lesson. Then the student dials 711-4070 using a touch tone phone to get access to the tutor. A pre-recorded message directs the student to key in the number of lesson that matches the TV program and the telephone tutor workbook page. The student selects the desired lesson number and specific exercise number. Each telephone Tutor lesson page has three separate exercises.

The system also allows students to review a lesson as many times as they want by pressing 0 at any point to return to the beginning of the lesson. If students press 0 instead of a lesson number at the beginning of a telephone tutor session, a message gives more information about the local adult learning resources and allows the student to leave a voice message for the local administrator. The student can also press the # key at any time to pause the telephone tutor and then press it again to resume the lesson.

The newspaper-like workbook is very popular with clients. When they carry it to and from class on the bus they feel just like everyone else on the bus with their daily paper. The teacher feels that the tapes provide an opportunity to present materials in ways that some may find easier to learn. Some students ask to use the tapes; others are not so keen. The teacher thinks that for some the material is presented too slowly.

ISSUES IN TECHNOLOGY USE

Clients liked the fact that they can work at their own pace without someone constantly looking over their shoulders. This group of learners is often sensitive about their abilities and progress, and likes to work in private. Clients can also monitor their own progress daily. The way the system reinforced their correct responses was appreciated.

On the other hand, some students like to feel "busy", and just watching the tapes can make them frustrated. Some students find the presentation patronizing. Many clients have been out of school for so long that having to learn a new technology as well as struggling with other tasks can be frightening. Some clients reported health problems related to working with the computer, for example headaches at the end of a session and some eye problems.

Some students got lost and slipped far behind in the computer lab. Given the demands on instructor time and inadequate number of teachers, there was concern that a student may sit for a long time staring at the screen, without one realizing that the student is not making progress. The teachers were concerned that such an experience could have negative spillover effects to the whole learning experience, and may cause some clients to drop from the program.

Clients and teachers agreed that in many cases the wording and presentation of materials in all the packages can be too simple and childish. This can lead to boredom or lack of motivation to learn new material.

GARFIELD HEIGHTS COMMUNITY CENTER(GHCC)

VIGNETTE

If you thought that the golden rule " do unto others what you would like done unto you" works then, read this one:

> " I don't like to be pampered ... I don't like it ... You are doing good .. and you can still do better .... sooner or later you are going to punch through ... I feel there is a wall out there ... obstacle ... life is an obstacle ... learning to read is not as easy as people would like to ..."

PROGRAM DESCRIPTION

HISTORY

This multimedia program was started in September 1990. Housed at the Garfield Heights Community Center about twenty miles outside downtown Cleveland, GHCC was intended as a literacy program to serve the whole of southeastern Cuyahoga County, both children and adults, from Head Start to Adult Education. The program serves the non- to low reader population, at 0 to 4th grade reading level and 5th grade level and above. GHCC is run by a Program Coordinator who reports to the Director for Literacy and Education Services at the CCC Metro Campus.

The major strength of GHCC is its integrative nature. It is a full service center providing an all-encompassing climate where parents and their children can come to learn jointly under the same roof in different classes. Any family problem can then be dealt with immediately. It combines classroom instruction, taped television instruction, broadcast television instruction and telephone tutoring assistance.

Resources

Start-up grants of $40,000 were provided by the State. This money was used to purchase the television set, the tapes and other instructional materials. The GHCC Adult Multi-Media Learning Center has 2 classrooms. One class is used for the 0 to 4th grade level (Multimedia Literacy Class); the other 5th grade level and above (Adult Basic Skills).

The 0 to 4th Grade Level class has instructor's desks in two of the corners. The student tables and seats are then arranged according to a U shape in the center. A television set was placed in one corner where everyone could watch it. Two telephones were also available for the students. The Fifth Grade level class looked like a traditional classroom, although the tables were arranged in a rectangular shape. There were two computers in this room.[10] The two classrooms are now approaching capacity. At our visit, there were 45 students in the 0 to 4th level class and 40 students in the 5th level and above class. However, attendance is about seventeen students on average per class. The coordinator was looking into increasing the number to 150 in the future but this will require an additional class and staff; she is not sure this will work.

There are two teachers, two assistants, and two tutors at GHCC. The two teachers were recruited immediately after the multi-media equipment was purchased. The volunteer tutors were recruited through advertisements and word of mouth. Some have been graduates of the program who somehow felt they wanted to give back something.

Clients

Students referred to GHCC are those receiving public assistance under the welfare-to-work program. The oldest students were 81 and 80 years old; the youngest was 16. The total student population was 85; evenly distributed between blacks and whites. Women and men were also about equal in number, although there were more women in the basic skills program than males. The GHCC neighborhood is predominantly white with a number of black families living close by.

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[10] The program coordinator confirmed that efforts were under way to link the PCs to PLATO at the Metro Campus through a network.

INSTRUCTION

APPROACH

Tutoring sessions last for one or more hours per week. Both classes (0-4th grade level, 5th level or above) run from 9:00 to noon every day. The Coordinator makes it clear to the students that while they will be given all support possible at the center, the rest is up to them. They are told that: " We are here to help you to be in competition with yourself ... you are responsible for the choices you make". The Coordinator believes that:

> "being able to read and write is an individual right .... there was always a way for everybody to be able to read .... no matter what your age color. It was up to us to make sure that everybody is exposed to that right .... then it is up to them [the students] to take a choice."

Most of the public bulletin boards at GHCC had brochures carrying positive messages meant to reinforce a sense of purpose in the learners. Some of the striking ones included:

> " The greatest security a person can have comes from within himself, not from outside. Nothing anyone can do for you can begin to match what you can do for yourself."
>
> Samuel Goldwyn

> " We must not allow any force to make us feel we don't count. Maintain a sense of dignity and respect ..."
>
> Martin Luther King Jr.

Students at GHCC are periodically given awards for best attendance, best effort, and best participation. In general, this seems to motivate the students, however , at least one student this not seem to like it. Again the quality of teachers and tutors was seen to be extremely important to the success of the program. Referring to how important this was, the coordinator had this to say:

> " Here are a people who may have dropped out of school because may be of a teacher's mishandling of their situation .... we don't want them to drop out again .. or to make them reminisce the old bad experiences the may have ... We strive to have teachers who are caring, patient and willing to do something to help. The climate here is one of " one big family".

TOOLS AND TECHNIQUES

The center has 31 Tandy 3000 microcomputers, two file servers, a VCR and a television set. Sixteen of the computers use the Computer Curriculum Corporation

courseware (CCCc) that is also in use at EALC; fifteen have WASACH courseware. The CCCc system is audio-visual; WASACH is only visual, and it resembles the PLATO system in many respects. CCCc is mostly used for the basic skills and remedial literacy courses; WASACH is mostly used for GED exam preparation. The VCR and television set is used in the multi-media program which caters to low level readers (0 to 4th grade). General maintenance is provided by the computer center at CCC Metro Campus. Software support is provided by software suppliers.

The Test of Adult Basic Education (TABE) is used to assign the students to one of the two grade levels. Those passing the TABE are assigned to the Adult Basic Skills program; those failing to a grade level from 0 to 4th level depending on their performance. Students are further monitored during the program to identify any learning disabilities.

Like EALC, GHCC uses the Kentucky Educational Television (KET) Learning to Read Program. More than one person can watch a tape at the same time. Until recently, students could also watch a tape by themselves on a small television using headphones at the back of the classroom. However, the small television set was recently stolen, so now they have to use a much larger set, making it harder for one person to watch without disturbing others.

The students found the learning experience interesting because everything was explained at first. When asked what he hoped to get from out of the program, one student explained: " I want to know to read so that I can read the bible and be able to fill job application forms so that I can get a decent job .... I also want to be able to use my computer at home ... type and run it .. I bought the computer as a teaching aid but I can't run it now. My family has been supportive and feels proud of me ... this gives me encouragement".

Evaluation Procedures

Success is measured in terms of students moving from the 0-4 grade level to the 5th level and above, and those finishing the 8th grade readying themselves to take the GED.

ISSUES IN TECHNOLOGY USE

The multi-media program coupled with good traditional classroom instruction was considered to be a wonderful and effective tool for learning. It can increase the student's self esteem as well as making teaching easier. Both the coordinator and students found the technology to be user-friendly. Student felt that being able to access the telephone tutor from home or anywhere was a great advantage . The telephone tutor was seen to be helpful and easy to use once the touch tone instructions were familiar. Students also thought that the class environment was very conducive to

learning because it was informal and they could work in groups although this was not mandatory. The workbooks were seen as being very enlightening. " One could see, say, hear and read".

The Coordinator did express concern that extra materials were needed to supplement the video and workbooks. The current workbooks tend to introduce new vocabulary without showing how to use the words. There was also need for workbooks that helped students to decode and practice inference skills. After some time, some students found the tapes and the exercises in the workbooks very boring. Some students felt that the tapes should be geared at a slightly higher level. One noted that " They are O.K. for kids." On the other hand, working through the tapes was frustrating for some students who need more guidance, and who get stuck often. While the ability to repeat material is very; useful, some students noted that the telephone tutor does not always work reliably. Additionally, "not everybody has a touch-tone telephone at home."

NORTHEAST OHIO PRE-RELEASE CENTER (NEPRC)

PROGRAM DESCRIPTION

HISTORY

The NEPRC Job Readiness Program was established in 1988 to prepare incarcerated women life after prison. The Pre-Release Center is located on the outskirts of downtown Cleveland. Services provided at this center include career planning and development, basic skills remediation, GED preparation and testing, job skills training, vocational counselling, vocational training, and job development and placement assistance. CTED was awarded a grant from the Ohio Department of Rehabilitation and Correction to fund the initial program. NEPRC leased ten microcomputers from CCC to start the program. In addition, CCC provided the training resources. Once prisoners are released, there is a forty to ninety day follow up to help with rehabilitation. The Director of the center reports to the Dean of Training and Economic Development of CCC.

RESOURCES

There is one lab instructor, one lab assistant, one tutor , and three placement advisors working at the center. This is a difficult population to work with, but the current instructor seems to have special qualities to cope.

CLIENTS

There are two types of inmates at the NEPRC. The majority, called "cadres", are serving sentences for varying lengths of time. The remaining "pre-release" inmates

have six weeks or less to go before they are released on parole. Classes are mandatory for the pre- release population, but not for the cadres. In fact, they can only enroll in courses if there is space and they can fit it into their work detail. There is a certain amount of tension between the two populations. 684 inmates have gone through the program from July 1991 to February 1992. Twenty-two of those have received their GED certificates, with a pass rate of 81% for those who tried the test. The bulk of the participants are between 30 to 54 years old, with a small percentage under 21. About half have high school diplomas, although many have Math and English skills below the 7th grade level. About two-thirds are black; almost all the rest are white. A high proportion have some history of substance abuse.

INSTRUCTION

APPROACH

Instruction delivery is very similar to that at MCALC.[11] The instructor tries to be a good role model for everybody inside the prison setting and outside it. As he says: " I like what I do ... I don't burn out ... it gives me pleasure when I help them succeed". He is helped by an assistant who releases him in the evening. His assistant is currently pursuing a degree in computer science. The tutor has been an inmate for many years, and has taken every kind of computer class she could during her time in prison; she plans to get a job using her skills when she is released. Of the three placement advisors; one teaches personal life skills, the second teaches Spanish and the third handles courses on subjects such as sexuality, parenting, and nutrition. Extra efforts are taken to ensure that to the extent possible those released are psychologically prepared to face the outside world. This means in addition to the GED preparation course, the inmates are given extra classes in life coping and job searching techniques.

TOOLS AND TECHNIQUES

NEPRC has 21 Tandy Microcomputers and a file server. The PLATO system in place is the same as the one at the MCALC. As noted earlier, ten of the micros were leased from CCC; the other eleven are owned by the center. In case of hardware problems the instructor calls the Computer Center at CCC or the hardware suppliers if necessary. For software support, NEPRC can use the Roach technical helpline, but so far there has been no software problems. The lab instructor backs up all the hard disks once every three weeks.

NEPRC uses a combination of computer lab instruction and classroom instruction. Each student is given an hour a day in the PLATO lab. A tight schedule is maintained since the laboratory is used to full capacity. In order to reduce friction between the

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[11] The instructor worked for MCALC before being seconded to this center.

prison officers and the inmates, the officers were welcome to come to use the PLATO system on an arranged basis.[12]

Evaluation Procedures

The success of the NEPRC program is measured by the number getting jobs and leading normal lives. The lab instructor estimated that on average one out of every fifteen released inmates returned. Some were seen to be habitual offenders. On a positive note, the center has had a forty-eight job placement success rate.

Issues in Technology Use

The PLATO system is considered user-friendly; people with no prior computer skills can use it very easily. The fact that inmates can work at their own pace without having others know what they are working on is a particular advantage in this setting. The instructor has seen inmates become very emotional when working on exercises on the computer -- often crying when working through the probing personal self-awareness exercises. The instructor has used the flexibility provided by the PLATO architecture to lock up some features and introduce new ones. For instance he has locked up access to the test base so that no one can attempt taking the progress test before she is ready. For those on the fast track, evaluation can then take place upon request.

CONCLUSION

The Cleveland cases provide an interesting illustration of how a varied and complicated set of initiatives can be integrated and directed. They represent a cross-section of community and educationally-based initiatives, and feature a variety of technologies and educational approaches. They also illustrate some financial and policy limitations of locating such programs within the rubric of a community college . As the other cases we have presented also confirm, there are no ideal environments, simply more or less of particular constraints and opportunities.

Cleveland is an interesting example of a set of programs that try to integrate services. Having literacy programs in places like community centers seems to work here (particularly at GHCC), as there are resources in place to make it easier for adults with complicated lives to stay in the program. However, it is clear that integration is more than just co-location nof programs; it requires a real commitment on the part of staff to make it work.[13]

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[12] This differs markedly from our other correctional example, the LA County Jail system, where considerable steps are taken to prevent the use of the equipment by the deputies in off hours.

[13] Similar observations arise from the McAllen case, where integration of services seems to have been both an early priority and effectively implemented.

A major issue cutting across all the Cleveland sites is that of managing partnerships that involve both educational institutions -- specifically, the community college -- and social service agencies.

The Director of MCALC was at pains to point out the difficulties inherent in a joint venture between an academic bureaucracy and a city government bureaucracy. The way a college typically operates is very different from the way a city manages its affairs. If a city-funded adult literacy program is housed in an academic setting, many administrative and financial details arise which are difficult to manage. The main goal of the academic organization is to confer credit and degrees; that of the city government is to improve literacy skills of its citizens so they can get jobs. A performance based contract where performance criteria are very different from the host organization's criteria can lead to problems. While the Cleveland programs have generally managed to create acceptable performance standardds that all can live with, it is not without effort.

The more disparate the partners involved in an organizational relationship, the more effort is required.[14] For example, ongoing uncertainty about how much money the city will grant from year to year to the MCALC makes it hard to budget especially for equipment acquisition and staff hiring. Administrative complications, such as when and how to bill for services provided and differing budget reports for each institution,further strain the relationship. Staff recruitment is a good example. As a part of CCC, MCALC is required to post job vacancies through the college system. However, can lead to delays of weeks, sometimes months, before they can actually fill a much needed position. The Director is then faced with the choice between hiring someone temporarily who may not get the fulltime position, or operating the learning center short-staffed for an unknown period.

Colleges can in principle make good sites for literacy programs. However, any academic setting that is considering entering into such an agreement needs to understand that difficulties will arise. One recommendation suggested by Cleveland's experience would be for the provider to keep enough financial slack available to ride through the rough times without being totally dependent on money from the contractor. A clear understanding of the potential difficulties from the outset will at least ensure that each party in the agreement can build in their own institutional coping mechanisms.

As in other sites, networking both within the Cleveland sites and between them and other programs is an area of concern. In general, the excellent informal relationships

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[14] Cleveland is not alone in encountering these problems, though they do stand out here in particular. For example, the relationship between the Sheriff's Department and the school system in the LA county jail case is also fraught with differences in implicit goals.

among the staff at the different programs helps to overcome some of the formal institutional barriers. MCALC has established partnerships with the Greater Cleveland Literacy Coalition, the Assault on Illiteracy Program, the Cleveland Public Schools, Ameritech, Ohio Bell and the Kentucky Educational Television Network. The Director of NEPC belongs to the Ohio Post Secondary Education Consortium (OPEC), the Correctional Education Association (CEA), and the International Correctional Education Association. She is an active member of both professional organizations, and thus has an opportunity to share information with others. This local cooperation has proved very beneficial to the literacy efforts of MCALC and its associates.

With those outside the "family", things are less rosy. MCALC often has visits from people who want to see PLATO in action. The information dissemination process is seen as a "shared resources concept", where literacy providers will share learning with others who could benefit. However, on the whole information dissemination is viewed by Cleveland managers as less effective than it should be. Although most of what goes on at the local centers is shared with colleagues in the other centers, it was felt that more sharing could and should take place nationwide.

MCALC occasionally reviews some courseware, and the Director himself is a well established member of the "loop" of literacy/CAI people in the country. In this way, he hears about courseware and hardware innovations and can share his experiences with others. In some cases the vendors will send out evaluation materials for the instructors to rate. Information about new technical and courseware developments also comes from courseware vendors at trade shows such as Comdex, and through trade and instructional journals.

Personnel selection issues are felt to be particularly salient here. MCALC officials in particular stressed the need to understand that adult literacy personnel have to be carefully chosen. Adult literacy personnel need special human understanding skills if they are to be effective adult education providers. Some of the skills mentioned are: empathy, patience, devotion, flexibility, and an insatiable dedication to want to improve other peoples lives.

The selection of hardware and courseware remains problematical. Administrators agreed that identifying the best courseware is one of the toughest decision. Weighing up the pluses and minuses among the various options available is very difficult, particularly knowing what the courseware is really like until it has been used by the students in the programs. The need for more attention to learning disabled students was als felt keenly. There are probably more disabled children than are identified, and there are very few services to help those who are. The point was made that providers must give unequivocal feedback to vendors that courseware specifically for adults was needed. Vendors must understand that they cannot get away with simply rehashing K-12 material. While adult based software is coming to the market, there is still a need for much more.

Finally, Cleveland staff expressed support for more interest in adult education generally. The Coordinator of GHCC in particular suggested that one important step would be for members of Congress to come to visit more adult education centers and see what is being done, and what is needed. As she put it: " Any report furnished to Congress may look good on paper, but when you are working on human lives, it is a different story. You really need to go there and see it." Cleveland in particular is a case where actually seeing what is in place is much easier than describing it in a brief compass.

GLOSSARY

AFDC:	Aid for Families of Dependent Children
CCC:	Cuyahoga Community College
CCC:	Computer Curriculum Corporation courseware
CETA:	Comprehensive Employment and Training Act Programs
CSSG:	Communications Skills Study Group
CTED:	Center for Training and Economic Development
EALC	Euclid Adult Learning Center
GHCC:	Garfield Heights Community Center
ITT:	Industrial Training and Testing Center
JOBS:	Job Opportunities and Basic Skills ("Welfare-to-Work" program)
MCALC:	Metropolitan Campus Adult Learning Center
NEPRC:	Northeast Ohio Pre-Release Center
OPEC:	Ohio Post Secondary Consortium

UAW-FORD NATIONAL EDUCATION, DEVELOPMENT AND TRAINING CENTER (NEDTC)

5101 Evergreen Rd.
P.O. Box 6002
Dearborn MI 48128

WALTON HILLS STAMPING PLANT
7845 Northfield Rd
Walton Hills OH 44146

WIXOM ASSEMBLY PLANT
P.O. Box 19
Wixom MI 48393

VIGNETTE

Willie went to work for Ford more than twenty years ago. As the third oldest in a family of 14 children, he had left school in the seventh grade to help support his family. "We were kind of poor, no 'kind of' about it, we were poor!" He came to Detroit looking for work and was delighted to land a job on the assembly line at Wixom Assembly Plant. Although he made a good living, he was always embarrassed by his poor reading, "I didn't want anyone to know I didn't have a high school education." His wife, a college graduate, heard of the learning lab at his plant and encouraged him to try for his GED. Working in the lab for four hours per week, he has gone from a fifth grade reading level to a tenth grade level in less than two years. Willie is able to share his new-found enthusiasm for learning with his teen-age sons, "I sit down with them, try to give them the confidence. '"Let's make fun out of it," I tell them. That's what they do in the lab, they make it fun. It's fun to learn." Willie has gained so much confidence that now, at age 40, he is planning to take some college courses, "OK, we met our goal. I don't think it should stop there. I think we should go as far as we can go."

OVERALL DESCRIPTION

Organization Structure	Worksite
Budget	
Amount	$68,000[1]

[1] Funds required to service 200 clients. Funding varies from site to site.

Type	Union (50%) Management (50%)
Staffing	
Teachers	
Walton Hills	Four
Wixom	Five
Aides (Wixom)	Two
Technology Specialist	
Walton Hills	Two[2]
Wixom	None
Curricular Content[3]	
ABE	4%
GED/High School Diploma	28%
ESL	2%
Educational Enrichment Services (Life Skills)	31%
Computer Literacy Training	36%
Clients[4]	
Total	not available
Race	not available
Sex	
Female	46%
Male	64%
Age (average)	46 years old
Recruitment	
On-site advertising	numbers not available
Word of mouth	numbers not available
Retention/Evaluation	not available
Technology	
Walton Hills	
Hardware	

[2] Technical support is contracted out to United Technologies Center.

[3] These numbers represent the Wixom site only; numbers for Walton Hills were not supplied.

[4] These numbers represent workforce averages taken from a random sample of workers at eight plants; client statistics were not supplied.

Type	ATT ATs (networked)
Quantity	Eight
Other	Television, video, audio tape, PC and CD ROM
Software	Math Blaster, Spell It, Grammar Gremlins, Read 'n Roll, Real Life English
Wixom	
Hardware	
Type	Zenith PCs[5]
Quantity	23
Other	Laser discs (Infowindow)
Software	WICAT

CONTEXT

The U.S. automobile industry -- critical to the health of the American economy -- is in some ways anomalous compared to the rest of the industrial sector. To understand how the UAW-Ford joint educational program developed and operates today, it is necessary to appreciate the key features of this industry. First, until recently, it was dominated by three huge firms, each with a long history and large, diverse facilities. Second, it is highly unionized -- by the United Auto Workers, another venerable institution. Third, its international economic environment is one of the most intensely competitive in recent memory. Fourth, it is characterized by rapid development of its core technologies, leading to requirements for new and upgraded worker skills.

Perhaps most salient to this case, the US automobile industry is one in which labor-management relations have progressed over time from highly adversarial to a position of mutual respect, especially at Ford. The companies need the highly skilled and diverse work force represented by the union; the union needs the companies to manage the increasingly complex infrastructure of the industry. Over the years, the companies and the union have jointly addressed a wide range of problems and issues, from improved worker participation to facilities planning. If there is not always agreement between the companies and the union, there is at least a sense of shared interest and participation. In short, the auto industry currently has a particular consciousness of the value of its human resources and the capacity to appreciate the social, as well as the technical, dimensions of its success.

In this context the industry and the union have established joint initiatives, such as the UAW-Ford Joint Education, Development and Training Program (EDTP). Interviews

[5] Eight are networked on a local area network.

with people at the national headquarters of the program (NEDTC) and at two local programs reflect the twin concerns of the company -- for an increasingly articulate and technologically savvy work force -- and of the workers -- to maintain employment opportunities. Both the company and the UAW believe that it is essential to enhance worker skills.

Ford now has approximately 97,000 UAW-represented hourly employees, at more than 75 sites, served by joint educational programs. Average base pay for these employees is $35,000 per year. The sites range in size from less than 50 workers to more than 4000. The results of a 1987 survey with approximately 1000 respondents (from a random sample of Ford workers at eight plants) indicated an average age of 45.6 years, 16.6 years of seniority, and 11.6 years of education.[6] Sixty-four percent of the respondents were male. Over 47% had completed high school, while another 24% also had some college. Twenty-six% has some high school, while just a few employees had only completed elementary school.

Fifty-eight sites currently offer the Skills Enhancement Program (SEP), which provides basic education, GED preparation, high school completion, and other opportunities to UAW-Ford workers. Each site has a different program, tailored to local needs. We visited only two: the Walton Hills Stamping Plant and the Wixom Assembly Plant.

At the Walton Hills Stamping Plant, an average-sized facility with about 2,000 workers, sheet metal is formed into automobile bodies. The average age of employees at Walton Hills is 52 years and increasing, as new hires are rare.[7] Less than 5% of the work force -- fewer than 100 individuals -- are female. The four-year old SEP at Walton Hills is especially interesting, because it was the first such program with a primary emphasis on computer-based instruction. During our brief visit, there was little activity at the SEP, probably because most employees were still working on their shift. It is also possible that the presence of so many strange visitors in the learning center had deterred those who were planning to stop in.

There are 3200 workers at the Wixom Assembly Plant, where automobile bodies and other parts are assembled into finished vehicles. The working environment is clean and bright, dominated both physically and psychologically by the miles-long assembly line. Just getting from one part of the plant to another is difficult due to the plant's tremendous size. Breaks and shift changes must be coordinated with shutdowns of the line, about 45 minutes in duration. The Wixom Plant SEP, about 6 years old, is considered typical. At this site, our visit coincided with shift change, and we observed much activity in the center. The computer lab there was especially busy and seemed to

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[6] These figures are from Gordus, J. P., Yamakawa, K., Melland, R. R. (1987). *Life/education planning program: A status report on the UAW-Ford program* (Center Report No. 6, rev. ed.).Dearborn, Michigan: UAW-Ford National Education, Development and Training Center.

[7] The range is 24 to 72 years.

be the drawing card for many participants. While we were there, participants approached the instructors for information about the availability of keyboarding classes, for help in designing a club newsletter, and for feedback on a term paper for a college course. This exemplifies an important aspect of the SEP's -- the diversity of educational needs they attempt to satisfy.

PROGRAM DESCRIPTION

HISTORY AND MISSION

The UAW-Ford Joint Education, Development and Training program was established in 1982 in response to the need to retrain displaced workers. The auto industry had been hit hard by the 1979 recession which resulted in nearly a 50% reduction in Ford's 200,000 person hourly workforce. A UAW representative explained: "Our problem was these people, especially the older people who had been with the company for years and years and years. When that plant closed, where do they go?" While many of the workers were very highly skilled, their skills were not necessarily in great demand elsewhere, and their wage expectations were high. "It was devastating. We had people losing their homes and their families. So that was our interest at first."

At the same time, developments in the economy as a whole led to an increased emphasis on employee development and training. Among them were: technological changes in the work place, changes in workforce composition, concerns about the quality of the education received by new employees, declining opportunities for upward worker mobility, and increased use of participative styles of management.[8]

The Education, Development and Training Program was established during 1982 UAW contract negotiations, and significantly expanded in the collective bargaining agreements of 1984, 1987, and 1990. EDTP is one of several joint programs serving Ford workers. These programs, jointly administered by the company and the union, are funded by company contributions on the basis of employee hours worked. Approximately $60 million per year is being spent for 10 major programs of which EDTP is one. EDTP was intended to promote both job security and personal growth of Ford employees while increasing company competitiveness.

The Skills Enhancement Program (SEP) is the EDTP component designed to meet the literacy needs of Ford employees. The Skills Enhancement Program represents only a

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[8] From Savoie, E. J. (1985). *Working together - today and tomorrow: Current developments and future agenda in union-management cooperation in training and retraining of workers.* Paper presented at the Spring, 1985, meeting of the Industrial Relations Research Association, to be published in the IRRA Proceedings and Labor Law Journal, reprinted in From Vision to Reality, Dearborn, Michigan: UAW-Ford National Education, Development, and Training Center.

fraction of EDTP's programs and support services for both active workers and workers on layoff.[9]

SEP started up in 1983 as the Basic Skills Enhancement Program, with offerings in four areas: Adult Basic Education, General Education Development, High School Completion, and English as a Second Language. A major turning point came in 1987 when "Basic" was dropped from the name and Educational Enrichment Services (EES) were added. Apparently, the emphasis on "basic" skills had stigmatized the program and its participants. We were told that workers did not want others to think that they were deficient or uneducated; they refused to be seen entering a room labeled with such negative associations. The change in program name and emphasis has greatly lessened worker reluctance to make use of program services.

One UAW representative explained: "In the beginning when we first started and called it basic skills what we did was we painted the windows so that you could not see inside because there was that stigma of whoever walked through that door was illiterate...it's more comfortable now because you have a group of people in there and you don't know what each person is working on because it varies."

Today, the SEP provides services to program participants at all educational levels. Many employees come to an SEP Learning Center for aid with college courses; some are even working on Masters' degrees. These students use Center computers, get assistance with their course papers, and brush up on prerequisite skills such as English or math. Other students seek out specialized programs developed by EDTP, such as the Math Enrichment Program that emphasizes practical uses of scientific calculators (e.g., to calculate the amount of paint it will take to cover a room of a certain size). Still others work to develop skills needed to participate effectively in company programs such as Statistical Process Control training, which requires math skills, and Quality Committee work, which require writing skills.

SEP appears to benefit participants, the Union, and the Company in several ways: by increasing worker feelings of accomplishment and ability to take advantage of technical training, by enhancing worker leadership skills and participation in committees and thus improving efficiency and product quality, and by demonstrating the commitment of the Union and the Company to the workers and thereby enhancing their commitment in return. Both EDTP, in general, and SEP, in particular, attempt to meet a variety of educational needs for as many UAW-Ford workers as possible. Both programs continue to evolve to better meet the needs of employee. Assisting in this process are the staff and representatives of the national program headquarters.

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[9] Some of EDTP's other programs are described in the Attachment to this case.

ORGANIZATION AND STRUCTURE

The administrative headquarters for EDTP is the National Education, Development and Training Center (NEDTC), a non-profit organization housed in a modern, four-story building in a park-like setting on the campus of Henry Ford Community College in Dearborn, Michigan. NEDTC administers EDTP funding, develops its national programs, and provides support and on-site assistance to the local EDTP committees at more than 75 Ford plants and facilities. It is these local EDTP committees, with representatives from both the company and the union that have the primary responsibility for initiating and implementing the education, development and training projects in the various sites.

The policy making unit of EDTP is the Joint Governing Body composed of 4 UAW representatives, including the Vice- President/Director of its National Ford Department, and four Ford representatives, including the Vice-President of Corporate Relations and Diversified Businesses. NEDTC staff include 11 full-time UAW and 10 full-time Ford representatives, including the Co-Executive Directors of UAW and Ford who share responsibility for the day-to-day administration of NEDTC. In addition, NEDTC employs approximately 60 people, including professionals from the fields of education, communication, personal development, counseling, training, and information processing. Center professionals develop programs and provide consultation in their areas of expertise and share responsibility for coordinating with the sites that offer their programs. For example, each of the two professional staff members responsible for SEP coordinates with 29 of the 58 SEP sites.

The UAW and Ford representatives on NEDTC staff comprise a "two-track" system of management. They work in teams of two -- one UAW and one Ford representative -- to oversee sites and programs. Each site team oversees approximately 10 plants each. Program oversight work is similar to management: According to one Union representative, "We have Union-Company reps that monitor it [a particular NEDTC program]. Union people don't like to be called managers but really in effect that's what they are doing."

The two-track administrative system ensures that the terms of the negotiated agreement are carried out in keeping with criteria important to both the UAW and Ford management. This unusual partnership is marked by much good-humored joking about traditional conflicts. When perspectives differ, they eventually reach agreement "by hook or by crook," as one UAW representative put it, recognizing that each has something to offer and that their goals are ultimately the same.

One activity of the UAW representatives is to screen potential educational programs in order to differentiate those that should be offered as part of the job training that Ford provides to employees during working hours from those that are appropriate for EDTP to offer employees. Workers participate in EDTP activities on their own time or "off-line, meaning when the person is not physically working ... lunches, after work, before

work" (source: interview with a UAW representative). At times the distinction blurs, but EDTP activities are considered "educational" with broad personal appeal (although never purely recreational), whereas job skills "training" is thought of in narrower terms. Thus, UAW representatives at NEDTC are wary of proposed programs that are too "job-specific:" "We as a Union would hate to think that Ford, which has far more money than this fund [the EDTP fund], would be using this fund for things which they should have been paying for anyway ... that's why we have to watch everything." On the other hand, UAW representatives recognize that, "SEP teachers who are good are knowledgeable and aware what kind of company training is going on, and what kinds of things they might be teaching that would complement and support [Ford company training]."

In summary, NEDTC provides the oversight, funding and support services to local EDTP projects including the Skills Enhancement Programs. Although much of what goes on in these projects is determined at the local level, NEDTC closely monitors them to make sure they comply with the general mission to provide quality educational benefits to workers.

RESOURCES

SEP's are initiated by the EDTP committees in various local Ford sites, but approval and funding for the programs comes from NEDTC, and the educational services themselves are provided on a contract basis by external agencies such as local school districts, community colleges, and even private organizations. SEP program planning is done by the plant's EDTP committee with the assistance of local Life/Education Advisors (another EDTP service) and by NEDTC. After assessing workers' needs, committee members "shop" for a service provider. Selection criteria include experience with adult education, sufficient breadth of services to meet local requirements, and teachers who can establish positive, supportive relationships with the workers. The committee then prepares a proposal and submits it to NEDTC for review and approval. (Proposals typically cover: local needs, the program components proposed to meet those needs, the relevant prior experience of the local education provider, the location and hours of the learning center, personnel qualifications, participant recruitment strategies, record keeping methods, plans for individual assessments and development of participant educational plans, instructional materials and resources, project evaluation procedures, and the proposed budget.) The SEP proposal must be approved by the NEDTC UAW-Ford "management" team responsible for the site, by the NEDTC Executive Directors, and by the Joint Governing Body of NEDTC. The final contract for SEP services is executed between the provider, NEDTC, and the local EDTP committee, and renewed annually.

A typical SEP start-up grant from NEDTC is around $30,000 for a large plant or $15,000 for a small one. These funds are earmarked for remodeling and furnishing the space to be used for the learning center. Books, supplies, computers, and software are funded through the annual contract with the service provider. (Providers are reimbursed

only for actual, approved expenses.) Annual contracts range from about $50,000 to $300,000, based primarily on the number of participants served. Other factors, such as teacher wage scales in different geographic regions, also contribute to the variations in contract amounts.

NEDTC tries to provide sufficient funds to meet local needs, but in a cost-effective manner. According to one NEDTC staff member:

> "It's not people up here saying, 'Here is what you have to have because that's what everybody else has.' We are pretty responsive to them. There are certainly some cases where we say ' We think that's perhaps a little overboard,' but in general we are responsive to what our locations say they need to get the job done."

A Ford representative added,

> "We want to be cost- effective, but our goal is to serve the employee, and the more employees that are involved, that's greater success. We're erring on the side of participative ways to get more employees actively involved in utilizing these services."

In evaluating program proposals, NEDTC staff pay particular attention to administrative versus teaching costs and cost per participant. A 200-participant program with budget of $68,000 was cited as especially cost-effective.

The competitive marketplace for educational services provides one of the chief advantages of the SEP program: If a provider is not meeting expectations, NEDTC can terminate the contract and select another provider. We were told of an instance in which the retired school teacher hired by a local school district was terrified of visiting people on the assembly line, a necessity for participant recruitment and needs assessment: This provider was replaced by the local community college. While possible, such changes are minimized in the interest of continuity.

The local education provider at the Walton Hills Plant is the United Technologies Center (UTC), an auxiliary, self-supporting enterprise of Cuyahoga Community College in Cleveland.[10] Founded in 1986 as the result of a community survey, its mission is to support the economic competitiveness of the region through workplace education to improve employee skill levels. Its first project was an off-site program developed for Ohio Bell. UTC currently employs 35 full-time and 3 part-time staff members. In 1991, UTC provided services to more than 38,000 individuals from more than 200 companies. UTC program components include Total Quality Improvement (51 contracts), Computer

[10] This program, although also affiliated with Cuyahoga Community College, has no relationship beyond a nodding acquaintance with the series of programs operated by the College that we studied here.

Aided Design and Manufacturing (15 contracts), Office Automation (19 contracts), and Self-paced Learning Systems (14 contracts).

The Walton Hills SEP program utilizes the Self-paced Learning Systems component of the UTC program. UTC's experience in computer-aided instruction was a primary factor in its selection. Walton Hills also valued UTC's access to the resources of Cuyahoga Community College. UTC's full-time manager of the Walton Hills SEP program has a Master's Degree in Education and experience in adult education and counseling. Three other part-time instructors -- 2 1/2 full-time equivalents -- are retired high school teachers. UTC offices also provide two coordinators who work with Walton Hills part-time on long-term planning. One of these coordinators worked in marketing and computer training before joining UTC.

The Wixom local education provider is the Walled Lake School District. The subject specialties of the five part-time instructors include math, science, reading, and computer education. Some engage in other educational work (e.g., substitute teaching), but all have secondary school teaching credentials; Michigan currently has no separate credential in adult education. There are also two aides, one credentialed. At least one instructor is on duty at Wixom at all times; between worker shifts, when the center is busiest, they try to have more.

SEP's emphasize flexibility in providing for individual needs. When participant needs or interests warrant, guest instructors can be brought in to provide services not planned for originally. When individual participant needs cannot be met by the SEP, such as participants with severe learning disabilities, general program funds can be used to obtain private tutoring.

Every effort is made to locate SEP services on-site in a location that is highly visible and conveniently accessible to Ford employees. Having the program on-site also helps reduce any negative associations with "school." However, despite the best site selection efforts, some Ford plants are so large that any location would be inconvenient for some potential participants. At Wixom, for instance, an auxiliary learning site has been set up to serve employees who work in areas far removed from the SEP's main location.

The availability of appropriate space for an SEP can be crucial to start-up, since many older plants were not designed to accommodate classrooms. This was the case at Walton Hills, where initiation of the program was delayed until a suitable space was found. The "Education Center," located across from the cashier's office, has a long and narrow main room, about 30' x 12,' crowded with furniture. It has eight PCs along two walls interspersed with cabinets and two tables seating six people each. The program grew beyond the limits of its original single room, and, when a smaller neighboring office became available, it too was utilized. Program administrators keep hoping to acquire additional space.

The Wixom Learning Center is located in somewhat more spacious quarters, just off the assembly line. There is one large noisy and crowded room, about 40' x 15', divided in two and jammed with equipment. One half is devoted to SEP courses using interactive video, Computer Aided Instruction (CAI), or traditional instruction; the other to computer classes. (A second, small room is suitable only for one-to-one activities.) There are three interactive video systems located against one wall of the main room, along with two spare computers. Against the opposite wall are the eight computers primarily used for CAI -- using WICAT software. In the center are some desks, tables and chairs. The computer half of the room has 13 computers arranged in rows.

Overall, NEDTC staff and local education providers have teamed up to provide a program geared to local plant and individual worker needs. In doing so they try to make best use of the available resources, including the human resources of local educational services providers, EDTP funds, and the physical facilities of the local plants.

CLIENTS

From the inception of SEP through May 1992, 61,144 enrollments have been recorded in various components of the program. Because program participants may sign up for more than one component, this number is larger than the total number of individuals who have used program services. Only since September 1989 have enrollments been tracked on an individual basis. From that date, 28,981 UAW-Ford workers have participated in SEP activities. In addition, 2,521 spouses have accounted for 3,386 enrollments since SEP was available to them. The distribution of enrollments by program components is as follows:

PART	WORKER ENROLLMENTS	SPOUSE ENROLLMENT
Adult Basic Education	4,865 (8%)	58 (2%)
General Education Development	5,620 (9%)	350 (10%)
High School Completion	3,590 (6%)	71 (2%)
Education Enrichment Services	43,690 (71%)	2,866 (85%)
English as a Second Language	923 (2%)	34 (1%)
Other	2,456 (4%)	7 (<1%)
TOTAL	61,144	3,386

The average rate of participation in SEP's ranges from 10% to 15% of a plant's employees. A typical program with 175 enrollments per year has 10 participants enrolled in ABE, 30 in GED, 125 in EES, 10 in ESL, plus 25 spouses, 15 of whom are enrolled in EES.

At Walton Hills, SEP participants are considered typical of the plant population, except for a much higher participation rate among females. During the most recent 12 month

period for which data were kept, there were 430 registrants, 200 of whom were new in a plant of about 2,000 workers. The program manager estimated that 47 were registered for GED, and 3 for ESL. Teachers at Walton Hills believe they are just starting to draw participants who need ABE. Since 1989, the Walton Hills program has served 700 employees. They began enrolling spouses last summer, and 19 have used the services to date, many coming to learn the Wordperfect word processing software. Most participants come with a specific learning goal. They are motivated to upgrade their skills, because the technological changes around them make them feel less capable. They also want to be able to contribute to the Employee Involvement process.

Of Wixom's approximately 3200 workers, 312 are signed up for the learning center, not counting those who just attend computer classes. Of the students using computer-aided instruction (most participants), 4% are enrolled in ABE, 10% in GED, 18% in HSC, 31% in EES, 2% in ESL, and 36% in computer skills. One student works at another Ford plant but uses the Wixom learning center because it is closer to his home. Wixom began its spouse program in January. Eighteen spouses are working on computer skills, twelve on other subjects. Many participants in the Wixom Learning Center are concerned about upgrading job skills in case they get laid off; computer classes are especially viewed as providing marketable skills. One man fears that he will lose his job before his retirement, only six years away. Although he recognizes that this fear is unrealistic, he still remembers having been laid off in 1980: He was down to his last benefit check before he was called back. Others come for a variety of reasons ranging from the desire to help a child with homework, to do church lessons, and to improve writing skills for quality committee reports.

A Wixom instructor described two students with whom she had worked. One came to the center for help with his college course papers; he used the computers for word processing and computer-assisted instruction to review math skills. Another student had a serious learning disability. Through his school years, he was placed in special education classes and told he would never achieve anything. Even today, he finds reading laborious, but after working with the Wixom instructor for 3 1/2 years, he has earned his high school diploma.

INSTRUCTION

Approach

The Skills Enhancement Program is built around traditional basic skills leading to high school graduation or equivalency, but it has evolved in each plant setting to meet the needs of the workers for additional education and personal development. Furthermore, it has broadened its scope to include advanced and enrichment subjects, both to attract more participants and to reduce the stigma attached to remediation. Although "basic skills" are still an important part of what takes place, "educational enrichment" better captures the overall flavor of the program.

Because it is organized within a highly-structured work environment, the program must be individualized. People come and go before and after shifts and during breaks. Computers are an important part of the program because they facilitate this pattern of interaction. There is no overall instructional philosophy, but there is a common feeling of personal attention and sensitivity that grows out of the need to attract participants whose peers may not be supportive of their efforts.

Although the SEP aims to be able to benefit every UAW-Ford employee through a wide variety of program activities, its primary goal is to meet the basic educational needs of workers. More advanced or more personal educational needs are served through other EDTP offerings. The major tenets of SEP include voluntary participation and program flexibility for maximum responsiveness to the particular needs and interests of the individuals at each site.

The Walton Hills program offers ABE, GED, HSC, ESL, and EES, as well as keyboarding on the PC and WordPerfect training. Because Ohio requires that courses for high school credit be taken at high schools, the Walton Hills SEP places much more emphasis on GED than on HSC, except where an individual only lacks a few high school credits. Instructors also focus on activities that can be integrated with other plant programs, such as pre-apprenticeship training.

Wixom offers the same core programs as Walton Hills. In addition to the more traditional academic courses, Wixom provides courses such as "Today's Issues," personal budgeting, and study skills. Unlike most other SEP sites where computer instruction is considered part of the UAW-Ford tuition assistance program, the Wixom SEP also offers a range of computer classes, including introductory DOS and programming, WordPerfect, Lotus 1-2-3, Harvard Graphics, and Pascal. Wixom differs from the usual policy in part because a computer course is a high school degree requirement in the state of Michigan.[11] Wixom also offers three courses of study via interactive video instruction: statistical process control, reading, and math for electronics.

Because increasing the numbers of workers served is a major goal of EDTP programs, participant recruitment is an on-going process. Recruitment for SEP is combined with recruitment for other EDTP programs and is augmented by the efforts of the Life/Education Advisor. Recruitment is accomplished by posting signs and bulletins, passing out brochures to workers on the line or at the gate, holding education fairs and open houses, making announcements over plants' closed-circuit television systems, and making use of community media coverage the word of mouth endorsements of current or past participants.

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[11] As more states move in this direction, there is likely to be continuing pressure on all adult education programs to develop effective computer literacy programs.

NEDTC has produced a video tape, "The Breakfast Club," that details the benefits of SEP for representative workers including an older man pursuing his high school diploma because he sees increasing need for education on the line, a middle-aged woman using EES to brush up on career advancement skills, a younger fellow using learning center resources for help with his Master's Degree work, a Rumanian immigrant working on ESL, and another fellow who wanted to improve his reading and writing and gain his GED so he would be a better leader in his church. Following EDTP's lead, Wixom has produced its own video for closed circuit television broadcast. The video is especially targeted at poor readers who might not be able to respond to print media.

Getting people into a learning center to see what it has to offer seems to be key to increasing participation. For example, administrators at Walton Hills, worried about protecting participants' privacy, initially kept the learning center's doors closed and blinds shut. However, they soon discovered that workers were far more willing to come in and investigate offerings if doors and blinds were kept open.

Another way to attract participants to SEP is through popular courses that get people interested in learning about other offerings. The new Math Enrichment course, for instance, seems to be attracting people to the learning centers at those sites where it is offered. A student described it as "really neat," while one teacher praised it for being so practical. Students tell her: "Now I can go into a grocery store and I can estimate what the cost is going to be." Other popular courses, such as automotive repair, building a patio deck or computer literacy classes, are typically offered as personal development pre-paid tuition classes in other on-site locations, rather than as SEP classes, but when they are offered at the learning center, administrators say, it can help get people through the door and increase awareness of its offerings. Computer literacy classes have traditionally drawn participants to the SEP, although interest may now be declining with saturation of the target audience unless new software (like Windows) sparks renewed interest. However, one student saw no end in sight to the computer classes he could take: "computers change all the time so you got to keep ahead of it."

Active recruitment, in which instructors and Life/Education Advisors "go out and sell the program," is emphasized at the Walton Hills Education Center, according to the program manager. They distribute a brochure appealing to employee needs to keep up with changing technology both at home and at work. The local EDTP committee also holds educational fairs to inform employees about all the EDTP possibilities, and the Union and local papers are helpful in publicizing the program. Referrals also come from a variety of sources in the plant including foremen and company trainers. Employees are surveyed annually about their potential educational interests. The range of possibilities listed on the survey sparks interest, and Advisors follow up with anyone who expresses an interest (145 employees in 1991). Information services informally provided by the center also help in recruitment. When one man wandered in in search of information about Roman numerals, he was impressed with the center's offerings and vowed to come back. Nevertheless, despite varied efforts to get the word

about the center out, people are still expressing surprise at the center's existence three years after its opening.

At Wixom, Learning Center instructors are especially concerned about recruiting those workers who might not be able to read the brochures they pass out between shifts. They hold open houses with refreshments and keep a supply of recreational reading materials donated by students to entice people to come in so "... at least they get to walk in the door and see what this mysterious place looks like," as one teacher put it. Computer classes and a variety of software available for participant use (Grammatik, Print Shop, income tax software, etc.) also serve to attract people. A number of employees now have their own computers at home and look to the learning center for technical support. Many students come to take computer classes and stay for other activities.

Hours of Learning Center operation are chosen to mesh with worker schedules, such as breaks and shift changes. Unavoidably, the facilities are underused for parts of the day and packed at others. The expansion of services to spouses during quiet times has improved overall utilization. Hours at Walton Hills are 7 a.m. to 4 p.m. on Monday, Tuesday, and Thursday, and 7 a.m. to Midnight Wednesday. The Learning Center at Wixom is open 8 a.m. to 6:30 p.m. Monday and Wednesday, 11 a.m. to 9 p.m. Tuesday, and 10:30 a.m. to 3:30 p.m. Friday. It is open to spouses Monday, Wednesday, and Friday mornings.

Instructors at Walton Hills also consider attempting to make participants comfortable part of their recruitment effort. One man, out of school 35 years, spent 3 weeks coming up to the door, before building up enough courage to come in. Similarly, center personnel avoid placement testing because of worker fears about the confidentiality of the results and because their prior schooling has lead many to fear taking tests. Self-testing is available to those who want it, however. This lack of self-confidence with respect to testing actually prevents some participants from attempting the GED examination when instructors believe they could pass it. As many as 6 participants at Walton Hills now seem to be in this position, including one fellow who has refused his instructors' urging to take the test for 1 1/2 years. Although the Center might be able to increase participants' confidence by offering the test in the familiar surroundings of the Center, this is prohibitively expensive in the State of Ohio. Some students may never move on to other programs, instructors believe, because of the horrible experiences they had in school and the security they have found in the SEP. But others gain confidence from their success. One 55-year old man was so elated by passing the GED, that he became much more vocal at work and significantly improved his contribution on the job.

At Wixom, too, instructors observed that if the students "don't have their high school diploma, some of them feel ashamed, so they are kind of embarrassed to come in here," but once they get to know the staff, they quickly turn around. Another teacher added, "I know that people are embarrassed. They don't want anybody to know that

they can't read or can't read well." Therefore, she tries "to develop a rapport with them and a desire to learn, [I] try to see what finally brought them in here so I can reinforce that desire." As still another teacher put it, "A lot of people are intimidated," and they need to see "that you're a nice person and that you've got things that they need." That they have met this goal is clear in participants' description of the learning center as "less pressured than school," partly because they are not tested and graded. One participant said that the lack of tests and grades made him "feel like the whole point was to learn as much as you can, not to be better than someone else."

In short, in addition to courses in basic education, the SEP instructors find it equally important to offer practical and popular courses that get their clients turned on to education. Perhaps even more important, instructors offer participants the support and encouragement to overcome the lack of confidence so many of them demonstrate.

Tools

Local SEP's vary widely in the tools and techniques employed to support education. Some sites take a more traditional approach to adult education with little use of technology, while others are highly technology-oriented. Because of the focus of this study, the sites visited, Walton Hills and Wixom, were chosen to exemplify the use of technology rather than to represent all UAW-Ford SEP sites.

At Walton Hills, much of the instruction is computer-based, although video, audio, and textual materials are also used. Walton Hills is more oriented toward the computer than other centers, because of space limitations that permit PCs but preclude a traditional classroom. This emphasis on computer-aided instruction was reinforced by the selection of UTC as the educational services provider. UTC places a high priority on improving the technical literacy of the local work force and offers instruction based on the computer, interactive videodisc, and a variety of commercially available audio programs.

In general, Walton Hills follows the open-architecture approach, where the software of many different vendors can be used, with 8 general purpose PCs, AT compatible, manufactured by AT&T. An interactive videodisc system in a separate room is used only for job-specific (non-EDTP) skills training, and Walton Hills is reluctant to invest in educational programs dependent on proprietary hardware (such as videodisc systems). A DEC terminal connects Walton Hills to a VAX at the downtown UTC location for purposes of client tracking and testing. However, as previously mentioned, the testing capability is rarely used.

For basic reading, Walton Hills instructors use the "Hooked on Phonics" audio tapes and workbook program from Gateway and Reading Horizons, a PC and CD ROM program, from Char-L. Many participants, even the high school graduates, believe they can benefit from the Hooked on Phonics program. The Kentucky Educational Television Program VCR tapes and workbooks are used for GED test preparation, but not for

basic reading. The ESL component employs "Real Life English," an audio tape and workbook series. The EES component utilizes a wide variety of video and audio tape programs designed to improve communication and study skills, as well as PC programs and games for English (Spell It, Grammar Gremlins, Read 'n Roll, etc.), math (Math Blasters, What's my Angle, etc.), study skills (Steck-Vaughn series on floppies), and computer literacy (Professor DOS, Wordperfect tutorial, etc.). PLATO was used in prior years but was dropped when program administers could not easily upgrade it.

All 23 computers at Wixom are Zenith IBM-compatibles, but they differ in technical specifications (e.g., memory size). Keeping up with the ever-changing world of computers is an on-going challenge. For example, some students have expressed an interest in learning Windows, but the Wixom machines lack enough memory to support it; the additional expenditures for equipment upgrades must await the approval of NEDTC during the annual contract renewal. The older PCs with amber screens and without hard disks are used for CAI; newer units are used in the computer courses. Eight of the PCs are networked to a file server. Occasionally, when spouses are using the Learning Center, demand for the computers outstrips supply, and the CAI machines are used as standalone PCs.

Before Wixom acquired the WICAT system about 2 years ago, the Skills Bank Program was used for CAI. The switch was made when program administrators observed the WICAT system in use at another program. Instructors prefer the WICAT system because it is more adaptable to the needs of students who wish to work on a single skill; the Skills Bank Program requires students to work through the curriculum in a more sequential fashion.

Wixom purchased an Infowindow interactive video system a year ago, for use in three courses of study: a Statistical Process Control training program offered by the company, reading, and math for electronics. Students tend to prefer the WICAT system for reading and math, but over 35 employees have completed the videodisc based Statistical Process Control training.

TECHNIQUES

Most SEP's employ a variety of instructional techniques, including: individualized assessment, academic advising, open-entry/open-exit participation, competency-based instruction, self-paced individual instruction, group instruction, and computer-aided and/or computer-managed instruction. At Walton Hills, little group instruction takes place because of space limitations. Initial placement of individuals is done by instructors based on discussion with the participants. Instructors find that participants prefer to start at the beginning of an instructional sequence rather than risk failure. If the level is too low, they can always progress to the next levels quickly. Students pick up assignment sheets as they enter the Learning Center and work on their own, using the teacher as a resource. The self-paced learning approach is appealing to participants.

The instructors at Walton Hills prefer an open-architecture, PC-based system, using software on floppy discs, over an integrated learning system, because the former is available at lower cost, making it possible to offer variety. They evaluate the software on the basis of its popularity with the participants. They believe that "the more expensive systems give better management, not better education." They find that interactive video is not especially useful for teaching their participants to read, although the video component may be important to younger learners or when there is no instructor on-site. On the other hand, they value interactive video for technical training and for teaching microcomputer applications (e.g., Lotus), since students can easily transfer between the video and the live software.

At Wixom, varied instructional approaches are used: individualized self-paced computer-based instruction, one-to-one interaction with a teacher, small group instruction, and even large group sessions. The larger classes are computer classes, traditionally structured to run in 6 to 8 week modules meeting once or twice a week. Of necessity, classes in auxiliary site are group classes and not technology-based, since the remote sites have limited hours of operation and are not equipped with technology.

At Wixom, instructors sometimes use placement tests, such as the Adult Placement Indicator, with students who do not have a high school diploma, because they believe that a Junior High level of functioning is necessary to avoid frustration when using the WICAT CAI system. They try to gear courses of instruction to students' interests and preferred learning modes. They supplement the computer curriculum with additional learning activities, especially writing experiences. Use of the computer is especially appealing to students who are shy and prefer to work alone.

Both teachers and students like the WICAT system's ease of use. Students sign in with their social security numbers; this calls up their individualized learning programs, marked with where they left off last time. This is especially useful for those participants who utilize the system on breaks, 15 minutes at a time, or for those working on highly specific skills such as solving word problems in algebra. An instructor compared this to their previous book-based curriculum: "For us to go through all the Learning Unlimited Books to find that particular book would take us the time their break was."

The WICAT "management system" sends a message to the student if the student appears to be having too much difficulty with the material. "The people, from my experience, love it, because they come in and do what they need to do. If they've mastered it, they go on to the next skill. If they haven't, they can do it over. They have that option to do it over. And as soon as they have completed all the activities within one lesson, then they can go into another lesson or they can jump out and go into a whole different curriculum, from math to English." (source: instructor interview)

The teachers praised several features of WICAT. They like it for its breadth -- more than 2500 hours of curriculum in reading, math, social studies, science, and word

processing. They also value the periodic updating to meet changing GED and HSC curriculum requirements. Instructors also appreciate the well-designed and easy-to-use student tracking aspects of the software. The fact that it will automatically log student hours on a specific curriculum is especially useful in Michigan where students can earn diplomas for courses of study taken in the Learning Center.

WICAT does have some drawbacks, however. It apparently lacks an English component sufficient to meet the high school completion course requirements, since one student reported that she was advised to use Infowindow (the interactive videodisc system) for this purpose. Another problem is its lower-level reading program, considered too childish by the instructors. (For students functioning at lower levels, either the Skills Bank program or Learning Unlimited, a book-based series, is used). In addition, WICAT lessons cannot be modified. While the system permits instructors to design their own tests, this feature is not used at Wixom.

One problem with the Wixom interactive video system is the inability of students to mark their place when they must stop in mid-lesson -- a common occurrence in this environment. "For instance, if you left in the middle of a math program, once you come back, you have to bring it all up again and you have to start from the beginning. It does not book mark. You have to start all over." (source: instructor interview) For this reason, the teachers devised a paper-and-pencil form for students to use in tracking their place, but the inconvenience remains. On the other hand, some participants like the system's audio output and the touch screen capability that eliminates the need for keyboarding.

Although most students chose CAI, some do not. One teacher described a participant who came to the center to improve his spelling and reading: "He will not go near the computer. I tried him on the WICAT and he said, 'No, I'm not going to do it!'" so she set him to working out of books. Older students and those functioning at lower levels seem more reluctant to use the computer: "because the computer technology is very new to them and they might feel threatened by it. They also like communication with another adult so they appreciate it that they just don't come in and sit down in front of a computer and plug away at things."

Another teacher questioned the appropriateness of computer instruction for lower-level students: "When you're talking that level for an adult who is intimidated enough to read, let alone work on a computer as well, sometimes that can be too much ... I mean there are words on the screen that they don't know what they are." Teachers will work with these students individually or in small groups as interest warrants. Both these students and their instructors find the small group experience especially satisfying. One teacher described the group instruction that takes place at the auxiliary site as "wonderful." She saw it as "cooperative learning." "One student had a question, I was starting to answer it and another student came in, 'well, this is what I have for an answer and this is why I got it'... Then, there was another student who needed help, so one [of the other students] got up and walked over to where he was sitting and actually sat down and

helped him out." Unfortunately, such group interaction is often lacking when computer-based technology is the primary instructional technique.

In summary, Walton Hills and Wixom exemplify two very difference approaches to the use of technology in adult basic education, despite their similarity in goals and context. All instruction at Walton Hills is computer-based, but the approach is "open-architecture," employing a variety of low-cost software programs from different sources, and eschewing proprietary hardware. At Wixom, computer-based instruction is just one of several instructional techniques, and the primary computer-based approach is a proprietary "integrated learning system." Both approaches seem to work, at least in terms of instructor and participant satisfaction, criteria of primary importance at UAW-Ford.

Evaluation Procedures

NEDTC is the primary evaluator of the SEP's and their local service providers. NEDTC requires providers to submit bimonthly reports and an annual report at the time of contract renewal, covering: recruitment and follow-up procedures used, coordination with other joint and EDTP programs, and instructional activities. Data are obtained on number of participants in each component (ABE, GED, HSC, EES, ESL) and subject (English, reading, math, science, social studies or other), as well as the number of participants who have attained particular goals such as earning a high school diploma, earning a GED certificate, earning high school credit, succeeding in a training/testing program, succeeding in college courses, etc. When evaluating programs, NEDTC is particularly interested in increasing numbers of workers served and keeping administrative costs down. EDTP also watches for potential offerings that are not sufficiently "educational" or overlap with other EDTP programs. Individual assessment techniques, educational planning procedures, and student tracking methods vary by site.

Nationally, through 1992, 590 employees and 20 spouses have earned GED certificates (out of 5970 enrollments) through the Skills Enhancement Programs. High school diplomas have been awarded to 90 employees and one spouse, while another 1,500 participants have earned some high school credits (out of 3661 enrollments). The Walton Hills SEP is considered one of UAW-Ford's most successful programs (albeit one of its more expensive), because of the proportion of plant members participating. Further evidence of its success is the fact that the Life/Education Advisor, who is in a position to hear employee complaints about the program, reports that he has heard none. Program administrators are proud that 7 participants have passed the GED, including their first success, a 68 year-old woman. Of participants attempting the GED, none has failed.

NEDTC staff feel that it is important to respect workers' concerns about the confidentiality of data about their educational deficiencies. While aggregate completion statistics are compiled, no data are kept on the use of services by individual

participants, and, to avoid the potential loss of worker trust, completion rates are not computed, even though this information might be useful for program planning and decision-making purposes. A similar approach was used when the Employee Involvement Program was first implemented at Ford: One of its basic tenets was that there would be no attempt to measure the performance of problem solving groups or to assess the financial contribution of Employee Involvement to Ford[12]. In keeping with this tradition that it is the process, not the outcome, that counts, NEDTC staff choose not to emphasize the numbers of participants reaching their goals or finishing programs of study. Nevertheless, they informally use such metrics in ascribing success to particular SEP's. For instance, one UAW spoke proudly of a "successful" center where "they have people that started off with GED ... went on for and got their Bachelor's and now they're setting up a program towards their Master's."

ISSUES IN TECHNOLOGY USE

Participants are generally enthusiastic about the use of computers, either as something to learn about or as a tool for learning something else. There is widespread agreement that computers attract students, especially classes in computer skills. "People like to see that they can work on a computer. It's the future. It's today. It's not cave man days like with the books." (source: instructor interview) Many participants start the program believing that computer training will help them keep their current jobs or allow them to find other employment if they are laid off; often they end up "hooked" on education more generally. Similarly, spouses, whose interests in acquiring marketable skills are even higher than those of employees, are very attracted to the computer classes.

In general, participants like to use computers for learning about other subjects. Self-pacing is one important component. As one student put it, "You study at your own pace whenever you want, You don't have to come in if you don't want to. You set your own pace. Whenever you're done, then you're done." Another student described it as "totally pressure free....I don't worry so much about how smart the other guy is or how dumb I am." One participant contrasted the computer, which allows you to go back over material until it is understood, with the classroom where, "if you don't understand the material, you simply get lost and then get farther and farther behind." Another person told us, "Sitting at a computer is easy. It's fun. You can't just pick up a history book and keep reading. You'd fall asleep. The computer keeps you interested, keeps you going."

Ease of use is a feature of computer-based instruction that is critical to SEP participants. They grab instructional time on the run, during breaks at work, or they steal time from other responsibilities before and after work. They need to get in and out; lack of an effective learner "management system" wastes their time. The main

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[12] Geber, B. (1989). "The resurrection of Ford". Reprinted by UAW-Ford National Education, Development and Training Center, Dearborn, Michigan, from the April, 1989, issue of *Training, The magazine of human resources development*, Minneapolis, Minnesota: Lakewood Publications.

advantage of an integrated learning system is the ability to pick up exactly where they left off, eliminating the otherwise-wasted time of getting started again. Because their interactive video system lacks this capability, the they are less enthusiastic about it, calling it a "fun toy" but "more trouble than it is worth."

The primary benefit of the technology for instructors seems to be efficiency. They feel they can work with more students when they are freed from routine instruction. In this regard, they describe computer-aided instruction as especially useful for students needing "a refresher course" in some area. An unexpected benefit of using computers is the fact that students learn to follow directions since "the computer will not do anything unless you do exactly what you are supposed to do." Not surprisingly, teachers also like the student tracking of an integrated learning system. Good teachers like to teach, not keep records.

Similarly, computer-assisted instruction economizes on the need for space. This is especially important to UAW-Ford, because many plants lack space for classrooms. CAI can also be useful in small or remote locations that cannot afford an instructor on-site at all times. On the other hand, the lack of portability of the instructional equipment currently in use prevents the effective use of CAI in remote locations. Some Ford plants are be very large, and no matter where the learning centers are located, they will not be convenient for all workers. Today, when teachers take instruction to satellite sites, they must leave their technology behind.

Appropriate content at lower levels is a major problem with the currently available instructional software. Teachers refuse to use programs that demean their students, and find themselves left with less varied and sophisticated materials to choose from. Lack of variety in instructional content is especially problematic given the varied goals of the adult learners in the SEP's. Can the same instruction program really meet equally well the needs of one who wants to help her child with homework, one who wants to do church lessons, and one who wants to write reports for work?

There was also an apparent lack of software to support open-ended activities at the sites we visited. Although we heard occasional mention of software designed to foster creativity and innovative problem solving, most of what we saw emphasized traditional skill development and the acquisition of facts. Many instructors believe they must supplement computer training with expressive writing and discussion groups. A related issue is the tendency of independent CAI to squeeze out beneficial small group instruction. One teacher commented on the marvelous experience she had with a group of students when she could not use the technology. Students learn from each other, and interaction with other students can be the basis for valuable lessons in verbal communication and group problem solving -- skills that are especially relevant in this setting.

Everyone we talked to reiterated the fact that the teacher is vital and cannot be replaced by the computer. First, of all, there are still participants who are intimidated by

computers and who refuse to use them. For these students, there must be teachers who know how to do more than manage software. But even for those learners who respond well to computer-assisted instruction, as one NEDTC staffer put it, "You never want to think of a system as replacing people. You never want to think of a system as being able to instruct a person better than you can in terms of your ability to reach that person and to motivate them to keep going, so systems are merely another tool."

Despite this desideratum, however, even instructors who preferred otherwise sometimes found their instruction driven by available courseware. Rather than using the computer selectively to supplement a total individualized program they themselves designed, instructors sometimes found themselves choosing among and supplementing what the computer had to offer. Thus, there is a danger of too much reliance on computers even among teachers who believe this to be a mistake. Computers are just too easy to rely on.

The biggest technology concern of SEP administrators is selection. They are overwhelmed by the number of products on the market, and, despite apparent similarity, the conflicting claims of vendors. One UAW representative said, "It's like car companies, they're all out there selling their product, so they're all out there wining and dining and soliciting people to buy their particular brand." Another staff member added that the people in the plants respond to the sales pitch, "'Well, maybe we need to get that. It looks high-tech.' And really it's not there to teach high-tech ... it's merely another tool and not that big a deal."

The rapidity of change makes the problem worse. Before administrators can study what is available, a whole new range of technology choices have appeared. At annual contract renewal time, NEDTC staff are inundated with requests for equipment upgrades, where everybody just wants to have "the latest toy". "I notice that first of all there's always an upgrade change ... the minute the change comes they want the latest thing because they're teachers and if they can't afford it for the house and their school district's budget is too tight for the next five years, they want to have it for the plant," is how one UAW representative sees the situation. With the cost of hardware so high, a major concern is whether or not the results warrant the expenditure, or as one Ford representative liked to put it, whether they are getting enough "bang for the buck."

Like so many others in the field, NEDTC administrators are frustrated in their efforts to keep up with this constantly changing marketplace. There appears to be little help for them. Through UAW, there is some sharing of information among the big three auto makers, which all have education programs, but there does not seem to be any other adult education or technology network available to them other than their contractors who face similar, if not greater, difficulties in trying to understand the marketplace. They clearly need a better means for information sharing.

One UAW representative wished "there was some consensus among the teachers that once you get to the level of 286, 386sx, you really don't need anything beyond that."

Another representative from Ford would like to see "a fair where we can see them all [hardware and software] at one time, some kind of national conference, some kind of comparative analysis. What we're trying to ferret out is, given the hardware we have today, that we've already paid for, what kind of system do you have that will work with that?"

Another selection problem facing program administrators concerns the proprietary hardware of many integrated learning systems. Although the situation may be changing, too many vendors still offer software that will only work on their proprietary hardware. Even when the software will run on different hardware, many software vendors refuse to warranty their software for such use. While refusal to buy software with these strings attached has led to some change in vendor policies, and proprietary approaches run in opposition to current trends toward "open systems" solutions, program administrators still have to struggle to maintain the flexibility of their information technology investments.

In selecting educational technology, NEDTC staff look for hardware compatibility, appropriateness for adults, user-friendliness, a wide range of course offerings, a good management system, and good support services. They would like more opportunity to lease before they buy, and to try out one unit before they must invest in ten. In general, they have preferred standalone units over integrated learning systems for flexibility, and they find interactive video most appropriate for technical training, rather than academic instruction.

Finally, it is interesting to note the limited use of distance learning at UAW-Ford. NEDTC has state-of-the-art teleconferencing technology, and most plants have mobile teleconferencing units. These capabilities have been used for meeting with site personnel in lieu of more expensive on-site visits; however, problems in scheduling the meetings have led to more limited use of the equipment than had been anticipated. For participants, the only distance-learning options used are videotape lending and closed-circuit TV. NEDTC is, however, considering local area networks for use at the larger plants.

In conclusion, both instructors and adult learners are enthusiastic about educational technology; however, problems remain. For the users of the technology, the chief concerns are the need for easy-to-use hardware and software and the availability of appropriate curriculum materials. Program administrators face the additional problems of keeping up with a rapidly changing field and making wise purchasing decisions in the face of continuing change and lack of compatibility.

GENERAL ISSUES

One of the most useful lessons from the UAW-Ford case is a creative solution to the stigmatization of adults seeking help with basic skills, especially in the workplace. By

expanding program offerings to attract participants at all levels, it is possible for the learner with basic skills to participate with no loss of face.

Although recruitment remains an on-going issue in the SEP's, administrators have gained some valuable insights. Learning centers need to remain open to view. Closed doors keep people out. Getting people through the door seems to be the key. Offering attractive courses is one place to start; at UAW-Ford, popular courses are practical ones that relate to everyday life at work or at home, such as computer literacy, math enrichment, and statistical process control training. While engaged in popular courses, participants can become "hooked" on learning, but they need to start with something of immediate value to them. Only then do they become enthusiastic supporters of adult education.

Another important learning from this case is that educational programs in the workplace differ significantly from other educational programs. Because of employee sensitivity about the confidentiality of performance data, this workplace educational program has chosen not to monitor individual employee progress, but rather to measure the effectiveness of the program in the aggregate. Because the UAW-Ford EDTP is the result of a negotiated union contract, NEDTC administrators and staff must maintain a clear distinction, meaningless or even counterproductive in other types of adult literacy programs, between educational courses and job-related training. The special context of this program even extends to decisions about equipment and materials purchases. For instance, SEP sites are encouraged to use Zenith computers wherever possible because they are assembled in the USA. When questioned about the basis for this decision, one UAW representative responded incredulously, as if the reasoning was self-evident, "Well, we're Union!"

Finally, one of the most important lessons in the case is that technology itself cannot solves the problems of adult educational deficiencies. Especially in a field as personal as adult learning, the critical ingredient for success is the interaction between technology and people, both learners and instructors. The UAW-Ford program demonstrates that teacher, learners, and machines, can be and must be brought together in flexible and adaptable combinations.

GLOSSARY

ABE:	Adult Basic Education
CAI:	Computer aided instruction
EDTP:	Education, Development and Training Program
EES:	Educational Enrichment Services

HSC: High School Completion

NEDTC : National Education, Development and Training Center

SEP: Skills Enhancement Program

UAW: United Auto Workers

ATTACHMENT: OTHER PROGRAMS

The Education, Development and Training Program is one of several joint programs that serve UAW-represented Ford employees. Among the other joint programs are the following:

Employee Assistance Plan, which provides services to assist in resolving serious personal problems, and to encourage fitness and healthful living;

Health and Safety Program, which focuses on training and research to insure a healthy and safe working environment;

Employee Involvement, which is based on the principle that workers have much more to contribute than just their physical labor;

"Best in Class" Quality Program, which ensures worker participation in achieving continuous improvement in the quality of Ford products;

Mutual Growth Forums, which promote sound union-management relations through better communication, fact-finding, and discussion; and

Joint Apprenticeship Program, the oldest joint program, which administers apprenticeship programs in 48 company locations.

These joint programs come under the auspices of the Joint Governing Body of the Education, Development, and Training Program. Each is administered separately through its own national and local committees and local representatives, but coordination occurs across the joint programs.

The national headquarters of the program, NEDTC, has the goal of ensuring that every employee, regardless of age or prior education, can get something out of EDTP. Thus, NEDTC itself offers three broad areas of programming: 1) the "Avenues for Growth" programs targeted at active UAW represented Ford hourly workers, 2) programs targeted at displaced workers (e.g., career counseling, vocational retraining, relocation

assistance, etc.), and 3) pilot programs or those in development. (One such developmental program involves a prototype working model of an assembly plant which concretely demonstrates the use of advanced technology components.)

The Skills Enhancement Program is one of the "Avenues for Growth" programs serving the needs of active employees. Among the other "Avenues for Growth" programs are:

Education and Training Assistance Plan: Provides prepaid tuition and fees of up to $2550 per year for approved for- credit courses of which up to $1800 can be used for approved non-credit personal development courses such as communication skills, computer literacy, time management, etc.

College and University Options Program: Facilitates use of tuition assistance through supportive workshops, on-site college classes, and credit for life/work experiences.

Successful Retirement Planning Program: Provides presentations and activities on benefits, financial planning, leisure and health.

Financial Education Program: Provides instruction in financial planning, investments, UAW-Ford benefits, and estate planning.

Life/Education Planning Program: Provides Life/Education Advisors to all facilities. The Life/Education Advisor works with the local EDTP committee to plan and coordinate the various programs, serves as liaison and resource for community educational opportunities, and provides individual educational advice and group activities such as the Life/Education Planning Workshop and Education Fairs. Life/Education Advisors typically have backgrounds in adult education and are provided through a contract with the University of Michigan School of Social Welfare which recruits them and supervises their activities.

SUMMARY AND CONCLUSIONS

It would be highly presumptuous for us, on the basis of six case studies, to offer general solutions to the problems of adult literacy, or even to technology applications to adult literacy. However, we believe that it is both necessary and appropriate for us to offer for OTA's consideration some summary observations arising from our cases, which probably find application in a broad range of cases, if not all. We will start with the good news and the bad news.

THE GOOD NEWS

In our cases, we found many encouraging things that lead us to believe that technology can be an important component of efforts toward adult literacy. Some of the more notable items of good news include the following:

TECHNOLOGY REALLY CAN BE EFFECTIVE

It is reasonably clear that there is a wide variety of effective information technologies available to adult literacy programs. Such tools range from simple to complex computer applications, to viewer-oriented or interactive video, to telecommunications-based shared systems. In our cases, we saw at least a sampling of each of these in action. They are not always used to fullest advantage, either because of design problems or implementation complications, but they are out there. Access to such tools is open to even relatively small-scale programs with limited resources, although of course large and expensive installations are also possible. When such tools are used, there is a definite sense, although not a lot of hard evidence, that learning is improved and progress toward literacy is speeded. Technology appears to be both an efficient method of reaching a larger number of clients than traditional methods can accomplish, and probably cost-effective in terms of resources expended.[1]

PEOPLE LIKE THE TOOLS

The overwhelming majority of the people interviewed in our study were highly enthusiastic about the benefits of information technologies in adult literacy efforts. Almost everyone agreed that technology helps attract adult learners to the programs and helps keep them there. In addition to its instrumental value in the teaching of reading, use of information technology, particularly computers, is often seen as a pathway to a vocational skill. Mastering technology enhances self

[1] It should be noted that there are very few systematic data available on cost-effectiveness as such. See our recommendation below regarding the need for systematic evaluation research.

esteem and increases motivation to learn; students will work with well- designed learning programs for hours if given the opportunity. Computer literacy programs designed to familiarize users with specific applications such as word processing and spreadsheets are often more popular than classroom-oriented basic skills courses, and in at least some cases can be used as effectively as more specifically literacy-oriented software to teach these same basic skills.

Information Tools Do Not Replace People

There is no substitute for the dedicated and effective teacher. However good the tools are, their application is no better than the underlying quality of instruction offered by human beings. Learning, particularly for adults, is at bottom a process of interaction between the minds of the teachers and those of the students. The tools can sharpen and focus this interaction, and can spell the teacher during the more repetitive parts of the learning process; they can also facilitate the administration of teaching. But ultimately it is the teacher who must guide the use of technology and shape its contribution to the overall learning context; only teachers are capable of responding to the whole person, not just the reading skills problems that may be presented in public. The best parts of any of the programs that we studied are those that reach out to clients across the full context of personal and social needs.

Information Tools Enhance Flexibility

Creative use of information technology can support the open-entry, open-exit programs that many believe essential for adult literacy instruction. For example, it can support individualized, self-paced instruction, by adjusting to different skill levels, by providing a "private" environment so that adult learner can avoid potential embarrassment, and by providing immediate, individualized feedback to learners. Technology can also be used to manage the complex administrative arrangements that flexible programming often entails, and to coordinate the multiple sources of funding that adult programs typically must reach for.[2]

THE BAD NEWS

Along with the positive elements of the picture, we feel compelled to point out some problems and concerns experienced by our respondents that lead us to moderate our expectations for technology successes. Some of the more notable issues are as follows:

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[2] Again, it should be noted that there are fewer applications of information technology to program management than might be supposed. The reasons for this remain somewhat obscure.

Adult Literacy Problems Do Not Occur In A Vacuum

It is absolutely clear that the populations most in need of adult literacy programs are also usually in need of a more or less significant array of other social support services. Among many of the clients of the programs that we studied at least, the inability to read is only one element of a syndrome that may include unemployment or underemployment, poor housing, nutritional problems, lack of access to child care, and other social maladjustments. No matter how good our tools for enhancing access to the printed word, we will have only limited success in resolving these other problems through literacy as such. Much as we would like to think so, reading alone lifts relatively few bootstraps. Moreover, the learning process itself is often impeded by these other factors of peoples' lives. Unless programs can develop ways of addressing the full range of life issues that their clients face, their contributions are likely to be swamped in a sea of troubles.

Technology Can Be Intimidating

Not everyone is equally enchanted by information technology. Any program that plans to open itself to a full range of clients needs to make available learning opportunities that are based on technologies other than those involving computers or even video. Some people are simply resistant; others have had negative experiences that lead to the tools' becoming more of a barrier than a facilitator to learning. Those for whom technology does not work are often (but not always) older and less generally equipped to cope with modern toys. But they deserve as much consideration as we can give to those more comfortable with state-of-the-art tools. Thus, efficiency is almost always going to be compromised by the need to make programs accessible to technophobes as well as technophiles.

The Tools Require Learner Investment

For learners who lack basic computer skills, use of information technology in adult learning can require significant amounts of time to be spent orienting students to the technology. This is not just an issue of "user-friendliness"; even the most "friendly" interface available takes some time to learn to command. For most clients who come into adult literacy programs, computer or even video technology is something that is outside the realm of the familiar, and time must be invested in learning how to use the tools themselves before they can be used to make meaningful contributions to learning. While some technologies are easier to access than others -- e.g., touch-screen and voice-oriented systems, even software programs that teach the use of the mouse -- the fact remains that at this point there are no "transparent" information tools in the literacy arena. The problem is compounded when system developers, themselves highly computer-literate, have a hard time putting themselves in the place of a person who has never seen a computer, much less manipulated it.

Information Technology Requires New Skills of Teachers

Traditional methods of training teachers, either professional or volunteer, for participation in adult literacy are not for the most part oriented toward technology use. Many adult educators lack computing experience or aptitude. Even when they can operate the equipment, they may not be able to manage the technology infrastructure: keeping it running, diagnosing common problems, setting up different applications, or performing simple maintenance. They may also have limited capabilities in the areas of hardware and software evaluation and selection. Teachers must generally become, if not computing experts, at least well-informed amateurs. For some, this is not just an imposition -- it can even go against the basic motivations for teaching in the first place. But it is essential if information tools are to find full utility in the teaching process. In our cases, we interviewed both those who have made this adaptation and those who have had a hard time with it. Both groups include talented and capable and dedicated teachers. It is no more easy to predict what kind of teacher will make this jump than it is to predict who will become any other kind of computer "guru".[3]

Over-reliance on Information Technology is Possible

There is a truism in computing that the more powerful the technology, the more it can look like magic. That is to say, the better the tools, the more we tend to rely on them without completely understanding what they do and how they do it. In the context of adult literacy, teachers can easily cultivate a tendency to augment what the *computer* does, rather than find ways to have the technology augment what *they* do. There can also be a parallel tendency for teachers to become "lab managers," technology facilitators rather than teachers.[4] The very "privacy" afforded by the technology can create problems: instructors may fail to recognize when students need assistance. There is a certain irony in finding that the better the tools we use, the more problems we can engender with this use. This is not a plea for limiting technology, merely for recognizing that one must always remember that it is an "idiot servant" rather than the "savant" its elegant interface might imply.

"Integrated Learning Systems" Can Be a Mixed Blessing

There has been a proliferation in recent years of systems that purport to be all-inclusive, even "turnkey" arrangements for handling the complete teaching task.[5]

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[3] See our point later in this discussion on the absolute necessity to develop appropriate local expertise in the management and operation of technology-based learning systems.

[4] In our cases, we encountered this problem more as a fear than as something actually experienced. A number of teachers did report that this was a tendency that they had to remain continually alert to avoid.

[5] The WICAT environment used in several of our sites is a classic example. IBM's PALS system is related, but not fully integrated.

While these systems can reduce the need for specialized support personnel, a quality particularly valued by the smaller programs, ILS's as a class (there are individual exceptions) share some serious deficiencies:

- They cannot be customized (easily or at all) for specific learner needs -- e.g., in some settings, instructors wish to enable or disable testing and timing.

- They have frequently been designed for children, not adults, and can be perceived as condescending; students lose interest and attempt to finish as soon as possible, rather than taking full advantage of the opportunities presented.

- They may offer little opportunity for student control -- e.g., students cannot advance to new lessons (or skip over certain lessons) as quickly as they would like; when this happens motivation suffers.

- While ILS's usually provide session-specific student tracking, some of them have difficulty in tracking student progress/attendance over time, and thus can frustrate effective management of the program.

- Some ILS's have limited "save and resume" capabilities, so that students cannot easily restart lessons. This is especially problematic for students with only a short time to work on lessons (especially in workplace programs where students may go in on breaks).

Again, this should not be read as a blanket indictment of ILS's, simply as a plea to recognize that there is no single "technology fix" that overcomes all the limits of program design and management. We shall return later to this overriding issue of the need for effective interrelationship of the social and technological elements in program operations.

The Flexibility of the Technology is Underutilized

Information technology for adult learning seems to have made little headway in overcoming problems associated with delivering the service to the clients whenever and wherever they need it. Typically, there is little use of "distance learning" in the programs we studied. Most of our group (except Cleveland) generally require clients to come to program facilities within specified hours in order to receive instruction. There are some very good reasons for this - for example, the need for social reinforcement and the need to develop job relevant skills such as punctuality, personal appearance management, and social interaction. However, in almost all of our sites, clients experienced major difficulties in going to program facilities (lack of adequate child care, lack of transportation, need to work during program hours, incarceration). At the same time, program administrators and technology support personnel complained about difficulty in providing access to the technology

whenever and wherever it was needed. Equipment often sat idle at some times, while being over-demanded at others. People complained that the technology was insufficiently "portable" to be taken to remote learning satellites. One potentially important opportunity for distance learning might be to provide opportunities for those who have exited a program for whatever reason (some programs have six month maximums, tied to funding restrictions) to continue to participate.

Software Availability is Limited

Software developers have not as a class been responsive to the needs of adult learners. Many of the program staff we interviewed expressed the opinion that vendors are discouraged by the apparently small and fragmented market for high quality adult programming. It is our assessment that they have underestimated the size of the market for such programs. While there are certainly unique local needs, we believe that there is a large market for high quality programming that can be easily customized by instructors to meet the special needs of local client populations. The needs are particularly acute in the following areas: reading instruction, ESL, foreign language instruction (e.g., Spanish as a second language), instruction that is integrated across subjects (e.g., reading and math), software to identify and assist in overcoming learning disabilities, and adult education that is not specifically "test" focused (e.g., GED oriented). More adult programming of the "external high school diploma" type is required.

The current software offerings are also limited in another key respect. To our knowledge, almost all technology-based instructional approaches (with the exception of non-interactive videos) are designed to be used by individual learners working on their own. While this supports individualized, self-paced, open-entry, open-exit, anytime, anyplace instruction, many adult educators emphasize the importance of learning in groups.[6] All of the programs we studied made extensive use of group interaction in some part of their curriculum. In view of the increasing importance of "groupware" in the commercial software environment, it is hard to understand the virtually complete absence of support for group-oriented learning technologies.[7]

Video Technology Seems to be Surprisingly Underused

In recent years there has been a virtual explosion of easily accessible video technologies. Yet in only a few settings does there seem to be extensive applications of this approach; the LA County Jail system is certainly the most

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[6] A few programs could not really be called "open-entry," since classes started at fixed times and only when a minimum number of students had been enrolled.

[7] The system under development by ETS that we saw being tested at the Ripken Center in Baltimore is an interesting exception, and its further development and implementation should be well worth watching.

effective illustration of what can be done with video under the right conditions.[8] Granted its limitations, it does remain cheap and more accessible to many people than the much more widely applied computer-based tools. Perhaps it is sometimes seen as too "low-tech", not worthy of attention precisely because it is accessible. It is certainly true, as the jail case also illustrates, that a substantial front-end investment in production tools is required, and an ongoing commitment to the medium requires significant and specific talents and expertise not found in the typical community-based literacy program. In short, doing it right is not cheap, and might even be seen as a diversion of resources from more pressing needs. However, not every site has to have the full production facilities that the jail system has developed; a few centralized facilities could probably meet lots of specialized needs. While the jail system has shared its materials with a number of other programs, there is room for much more diffusion of this technology and its applications than is being currently explored.

NETWORKING -- OF BOTH PEOPLE AND MACHINES --IS FAR TOO LIMITED

Possibly the saddest piece of news that characterizes the parts of the adult literacy/technology scene that we have investigated is the striking absence of networking, between sites and often even within sites. We use the term generically. At the most basic level, there is far less use of networking among machines even within sites than the state of the art would suggest possible and even desirable. This is paralleled by a general isolation of personnel in one facility at a site from those at other facilities. This is not universal -- some sites have been able to create cross-fertilization among their personnel -- but isolation is far too characteristic to allow the literacy community to be comfortable. And there is so little contact between sites as to suggest that programs in this area are often operating in a virtual intellectual and functional vacuum.

Coordination of services with other agencies is frequently desired, but singularly underachieved. Despite the capability to use their own technology to exchange information, there are few attempts made to help learners identify or access other social services available to them (e.g., child care, food, housing, transportation), other than where mandated by law as a part of a welfare reform initiative or similar incentive package. In short, the potential for information exchange is singularly untapped in the agencies we studied, despite their wishes for it. Like everything else, networking costs resources, and it is often hard to justify taking funds from service delivery to support it.[9]

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[8] Of course, the peculiar conditions of this case, with the large and constantly shifting client population, have made video virtually mandatory as a medium.

[9] In our Recommendations, we offer some suggestions as to how networking might be improved.

ORGANIZATIONAL AND INFRASTRUCTURE ISSUES

Detection of good and bad news in the overall picture of technology applications in adult literacy is only one part of the picture. Of even more overriding importance, in our opinion, is a set of issues and concerns revolving around the social and organizational contexts within which technology is applied in such programs. On balance, it should come as no surprise that context critically conditions and mediates the impacts of technology on organizational participants, both providers and clients -- it is one of the principal commonplaces of any systematic analysis of technology. Nevertheless, it is appropriate here to offer some observations on how sociotechnical interactions pose both opportunities and limitations for technology use in literacy improvement.

ALL PROGRAMS MUST COPE WITH THEIR POLITICAL ENVIRONMENT

We would like to believe that adult literacy is an educational issue, one "above politics" in which the interests of individuals can selflessly and seamlessly be served. Unfortunately, as soon as we set up social organizations to help people, we are inextricably enmeshed in a web of politics. Sometimes this is politics writ small -- the direct interactions of different interest groups trying to maximize their own leverage over particular social institutions. Sometimes it is Politics in the larger sense -- that is, the interactions of large social groups vying to shape society in ways that enhance their quality of life. But always conflicts of interests can be observed, and must be coped with in diverse ways.

Sometimes literacy programs become a direct part of the political agenda, as we observed in Baltimore. While this does have advantages in terms of increasing visibility for such programs and thereby improving access to social resources, it does pose the danger that he who lives by the vote can die by the vote. If the next Mayor decides that Baltimore should be "the City that Sleeps Safely" instead of "the City that Reads", something critical will have been lost that may prove very difficult to regain. The public agenda is notoriously fickle, and while there is a certain satisfaction in being the Cause of the Month, it always the case that there will be another Cause next Month. Adult literacy is a long-term issue, and will not go away with the next shift of public opinion or media hype. It helps to be closely tied to a wide range of institutions, as in McAllen, where the program appears to be firmly fixed in the local environment. But politics is politics, and nothing is ever permanent.

The political dimension is no less real in other settings, though it may be more subtle. In the UAW/Ford program, for example, the politics are organizational rather than societal. The activities of the projects in the auto plants are played out in the context of labor/management relations generally, and the highly sensitive environment of the domestic automobile industry in particular. Passions run high in this environment, and threats to interests are strongly felt and quickly reacted to.

The LA County jail program is likewise entangled in the entire set of issues dealing with crime and punishment generally, and the particularly difficult environment of contemporary Los Angeles, with its deep social, racial, and economic divisions. What may appear on the surface to be simple technical decisions turn out on further inspection to have major ramifications for long-term organizational survival and development.

Increasingly, instability is a hallmark of the current American political and social scene. Issues come and go in prominence, and there is little consensus on long-term directions and priorities. Moreover, there is increasingly bitter competition among priorities for what appears to be a steadily shrinking pot of resources, both public and private. Under these conditions, cobbling together support for programs becomes an art form of high order. All of the programs that we visited drew on multiple sources of support. This does allow programs a degree of flexibility in that they are not tied inextricably to any one set of funds (with the possible exception of the UAW/Ford program); on the other hand, it also requires agencies to respond to goals and priorities of many different funders, some of which may be incompatible if not downright contradictory.

This instability in turn makes the effective implementation of technology-based strategies for literacy programs problematical at best. Such programs cannot be put together overnight, nor can they be easily retooled to respond to a new set of priorities. Rather, they require time to set up facilities, procure hardware and software, learn how to use it effectively, recruit an ongoing client base, and generally establish a credible reputation. Programs have to become expert at reinterpreting themselves in different terms to different groups and at different times. Constant coping with the environment, while it does keep programs on their toes, also exacts costs in terms of time and energy at least. Working out the place of adult literacy in the nation's and the local agenda looks to be an ongoing and difficult process.

The Constituency for Adult Literacy is Limited

The essence of politics is *constituency* -- that is, the group whose interests are being served by the process. If, as we have suggested, adult literacy programs almost always operate in a political environment, this implies that such programs must develop and maintain a constituency to remain viable -- and perhaps to attract better attention from software developers and vendors. The difficulty is that those who stand to benefit most from these programs are perhaps the group in society least equipped to mobilize on its behalf -- that is to say, those who have limited reading skills. Their very need for the program serves to cut them off from the normal channels by which political influence is exercised. Moreover, if the program works and people actually do learn to read, they generally sever their connection with the program -- just at the point where they might begin to be able to do it some good. There is a cruel paradox at work here.

This perhaps overstates the point. In fact, there are some constituencies for literacy programs derived from the general social consciousness of the country, and, as the UAW/Ford case illustrates, an increasingly mobilizable constituency based on workplace interests. Part of the problem remains that it is small business more than large business that bears the brunt of the impact of worker illiteracy; large firms can afford to be more choosy about whom they hire and retain. Yet small firms are notoriously unable to form themselves into consortia capable of exercising systematic influence and putting together joint programs. Another possibility -- if "family values" becomes more than this year's catch phrase, perhaps the family can itself become a literacy focus; certainly family-based programs are among the more successful ones in operation.

In any case, the mobilization of support for literacy remains diffuse and complex, and at a considerable disadvantage relative to more organized social interests and problems. Limited literacy remains to a significant degree a "hidden" social problem, much less visible than, say, homelessness or unemployment. Nevertheless, as our cases illustrate, programs do get created and maintained, usually through the political and organizational competence of extraordinary individuals. The nature of the system does little to make their tasks easier.

Evolution and Reinvention are Critical

Another key theme illustrated by our cases is that the only thing permanent about them is change. Yet another paradox -- only through continuous changes in structure, emphasis, and procedures can any semblance of continuity in programs be maintained. There are a number of different sources of pressures for change, some of them social, some technical. On the technical side, there is the pace of technological developments themselves -- bigger, faster computers at a more manageable price, better software, interactive video displays, and the full range of new toys that are continually coming to market. On the social side, there is the constantly shifting wind of the political agenda noted earlier. Moreover, there is more or less steady personnel turnover, both in terms of providers and clients, and thus a regularly shifting body of program participants on both sides of the curtain.

Again and again, in our cases as in virtually any other technology application that we discussed in our opening frame of the problem, we see that the key to effective use of technology is the capacity to "reinvent" -- that is, to modify existing hardware, software, and systems to new uses and new purposes. This may range from the glosses applied by a capable teacher to make a software program designed for six-year-olds palatable to their parents and grandparents, to full-scale customized installations of networked stations. At all stages, it is the imagination and talent of particular individuals that makes systems manageable. If systems fail to be able to see the necessity of change, they die.

THE INFRASTRUCTURE FOR PROGRAMS IS CRITICAL

The infrastructure of programs may be described as the set of all aspects of the program, other than those that actually provide services to clients, that are required to maintain it. Technology does not operate without an infrastructure, and the more a system depends on technology, the more vulnerable it is to disruptions in that infrastructure. As programs come to depend more on "open architectures" with widely differing combinations of machines and software, the more they need specialized personnel to evaluate hardware and software, perform systems integration, troubleshoot and solve systems problems, switch over equipment to different applications, and handle the myriad of other strange and wonderful things that arise daily.

The situation is compounded by problems arising from equipment and software diversity. Many programs, even those that rely heavily on ILS's, tend to have a very diverse portfolio of equipment. Often they have acquired much of their equipment in the form of miscellaneous gifts and "hand me downs." This increases the difficulties of teachers in using the equipment, and of equipment support and maintenance personnel as well.

Even highly computer-sophisticated organizations experience system integration problems; yet again and again we find literacy programs that can generously be described as "computer-shy" coping with and effectively resolving highly complex integration issues. Much as this is a testimony to the dedication and capabilities of the individuals involved, it can best be described as a disaster waiting to happen. Each and every one of the programs we visited is in critical respects staggering under a potentially deadly load of infrastructure problems in the form of equipment failure, personnel turnover, and knowledge obsolescence.

Perhaps the most critical element of the infrastructure, and the one least well coped with, is the level of "local expertise" available to program sites. In all the sites we visited, as in virtually every other information technology-using site that the authors are familiar with, there are one or more "gurus" who, by virtue of interest and capability (seldom formal training) manage to provide the well of expertise and knowledge to nourish staff usage by those who cannot equally grasp the underlying mechanics of the system. These individuals are absolutely critical to the functioning of the programs. Yet there is almost never a formal mechanism set up to stimulate and reward guru-hood -- even to "clone" or back up people who have assumed the role in practice. Often the role must be carried out over the passive or even active disincentives established by the organization. We believe that the contributions of such individuals need to be cultivated and encouraged, since it is they who manage to keep the infrastructures patched together with baling wire and cellophane tape -- not to mention recycled disk drives and self-taught midnight programming.

In short, while it is relatively easy to evaluate the pedagogical advantages and disadvantages of particular software programs, it is far more difficult to assess what is going to be necessary to make the program usable in terms of administrative and technical backup. But if the infrastructure fails, it matters not how good the program was -- nobody is going to benefit from it. Unfortunately, there are few lessons in *how* to manage infrastructures to be drawn from the literature or the experiences of others -- just an almost endless array of illustrations of different ways to fail in varying degrees. The one thing that we *do* know is that the organizations that experience the fewest infrastructure problems are those that recognize that it is there and needs systematic care and feeding. "We deal with it by talking about it" is the *sine qua non* of coping.

RECOMMENDATIONS EMERGING FROM OUR ANALYSIS

We conclude this analysis with a few simple recommendations derived largely from suggestions offered by our respondents during our interviews. Some lend themselves to policy suggestions; some are offered more in the spirit of cheer leading than specific changes.

INFORMATION TECHNOLOGY SHOULD BE ENCOURAGED.

While ... is no panacea for resolving issues of adult literacy in this country, it is nevertheless likely to contribute to effectiveness of programs in which it is used in conjunction with trained teachers and appropriate infrastructure support resources. Adult learners like it, use it, and benefit from it. There should be more of it in use, and in more sites, and of a higher level of sophistication.

How do we get more technology utilization, particularly if, as we have suggested, much of it depends on local initiative and reinvention rather than on central direction? One way would be to try to focus resources onto technology, either by mandating certain investments out of Federal grant funds or by setting up some new grant program emphasizing technology in particular. In general, this is probably less effective than it might seem, and would be likely to introduce technology biases into the system. There are, after all, certain "heavy hitters" in the literacy technology game who would be likely to end up with a disproportionate share of the resources. Reliance on the market is better.

What could be done, and relatively easily, is to expand the resources available for sharing information and ideas about creative applications of technology in literacy. We discuss this point in more detail further below in our comments on networking. At this point, we believe the barriers to technology applications are more conceptual than financial. Money never hurts, but the answer is not a great infusion of new funds; rather, the problem is to use what is there in a more focused fashion.

HARDWARE, SOFTWARE, AND ADMINISTRATIVE FLEXIBILITY NEED TO BE ENCOURAGED.

Since there will always be local situations and problems requiring customized solutions with limited applicability elsewhere, there will always be a need for tools (both ILS's and products designed for an open architecture) that permit easy modifications by instructors and flexible usage patterns by adult learners. The incredible diversity of situations even across six cases illustrates that "one size does *not* fit all". Both program design and technological content need to be responsive to both the immediate and the ever-changing local context.

This concern can probably be best addressed by a firm resolution to keep hands off. There will be a temptation on the part of government, particularly if there are additional resources to be allocated, to establish "standards", define "best practices", and in general get involved with the nuts-and-bolts of program design and implementation, all, of course, in the interests of effectiveness. This temptation needs to be resisted. A hundred -- or a thousand -- flowers need to bloom, and the good that might be done by preventing one or a few programs from making fatal mistakes is likely to be more than compensated for by the harm that would be done in reducing innovation and creativity. We take this opportunity to issue a strong plea for the encouragement of diversity.

COMMUNICATION ALSO NEEDS TO BE ENCOURAGED.

We believe that communication is the key to effective implementation of any improvements in the entire technology/literacy picture. While flexibility and reinvention are Good Things, we have seen many local innovations with widespread potential applicability, both pedagogical and administrative whose light remains hidden under a local bushel. Along with our respondents, we believe that information dissemination services for adult literacy administrators, educators, and technology support persons are both essential and largely ignored at present.

This is something that government *could* profitably become involved with. There are ample precedents that might be applied, such as the National Innovation Network operated by the Department of Education to facilitate the diffusion of new ideas in teaching generally. This might usefully be supplemented with a modest program of support for technical assistance rendered by program people in local sites to each other. Creative people can and would be happy to help each other try new ideas, share software, tell war stories, and in general support each other's efforts if resources were available to fund travel and related costs. Again, what is needed is not a large Federal presence in technical assistance, but rather encouragement for people on the firing line to get together and be resources to each other.

At the very least, there is room for electronic bulletin boards devoted to evaluations of and experiences with particular commercial or locally developed educational

software or supplemental materials. Such boards are inexpensive to operate, but they do take initial investments and continuing attention. For a set of small grants to appropriate regional and/or national organizations, a great deal of effective interchange could be encouraged. With modems available for less than $50, there is virtually no excuse for any computer system not to become part of the "cyberspace" of information exchange.

What conferences and professional organizations there are in this area do an excellent job, but they barely scratch the surface of its potential. Some additional funding for regional and occasional national conferences would probably be well received and of significant impact.

SYSTEMATIC EVALUATION RESEARCH IS NEEDED.

Again, there have been useful efforts made to compare different approaches to use of information technology in adult education and to disseminate the best approaches. But they have generally been underfunded and single-shot studies, without an ongoing underlying research paradigm. There is need for a fairly extensive set of studies in this field to address the full range of sociotechnical issues that we have discussed, as well as many that have undoubtedly escaped our attention in the whirlwind of this project.

What we would suggest needs emphasis is not research on literacy as such, or even on appropriate technology for teaching literacy, but rather research on the *processes* by which successful community and workplace-based programs can be created and maintained. This is not to say that technology or content-focused research is not useful; it is only to reinforce that we know so much less about what to *do* with what we do know that it might be appropriate to let our ability to apply knowledge catch up with the knowledge itself for a while. We suggest that a combination of quantitative and qualitative research aimed at understanding how implementation of technology in the field of literacy is both like and unlike implementation in areas that have been more studied, such as schools, offices, and industrial settings. This would, in our opinion, enrich our knowledge about both literacy and technology in general, at the same time.

Clearly, research on new techniques should also be encouraged. The developments under way at ETS toward creation of new group-based interactive software show that there is always room for new kinds of tools to enter the arena. In addition, technical research should continue to explore innovative ways of networking both individual sites and groups of sites. We believe that this research is probably more effectively funded by vendors and other private sources rather than government, which does not have a particularly good track record "picking winners" in technology choices. The exception might be greater encouragement to agencies with literacy interests such as the Departments of Education and Labor to

use their Small Business Innovation Research programs to encourage the development of innovative technologies for literacy improvement.[10]

Another area that might profitably be explored is that of evaluation at the local project level. Very few of the sites we visited had anything approximating a formal evaluation capacity. This is not to say that they were not interested in what they were doing, or with what effect -- simply that they had other things to invest their resources in that appeared to be of more pressing importance. Evaluation has never been particularly popular at the project level. Yet where outside resources can be provided to support it, it can have some very valuable consequences. The major lesson to be derived from a good many years of Federal research on program evaluation is that it cannot be imposed from without -- rather, the capacity has to be grown within the project as part of its basic structure. Moreover, it must concentrate on the formative aspects of evaluation rather than the summative or judgmental. In any case, a modest program of funding to support the development of systematic evaluation programs within at least a few programs might have significant payoff.

This is not an area that calls for a single unified research agenda, particularly not one set by a Federal agency. Rather, it will be best served by a diversity of approaches and strategies fueled by the different research interests of a range of sponsors, public and private. One step that the Federal government might most profitably undertake is to sponsor an annual or at least regular research conference at which various aspects of the technology/literacy interaction could be explored and cross-fertilized. Such conferences, generally costing less than one individual study of modest scope, can be of enormous value in encouraging research progress.

MAKE RESOURCE COMMITMENTS SUSTAINING.

We echo the heartfelt plea of many of our respondents that whatever resource commitments may be made to adult literacy and specifically to technology in teaching be continuing and predictable. A modest level of resources that could be counted on steadily would be far more effective than a large one-time injection of resources that could not be digested easily. Even worse would be "seed-money" type commitments that are directed toward particular types of technologies; these establish perverse incentives that are particularly destructive of systematic organizational operations. While everyone would like more money, there is general agreement that it should be the right *kind* of money.

A steady pattern of support is a key component of the "infrastructure" that we described earlier. Specifically, steady support allows systematic planning for technology acquisition and upgrade, staff training and development in both teaching

[10] At present, there is no way of effectively determining how much SBIR activity there may be in literacy. Assembling these data would be a useful exercise in itself.

per se and technology applications, and the careful monitoring of outcomes across time that alone can tell what is actually happening as a result of different approaches. Environments of resource fluctuation are particularly damaging to evaluation as well as planning.

FOCUS ON LITERACY, NOT TECHNOLOGY.

Finally, we offer the observation, again suggested by many of our respondents, that the real problem is *literacy*, not technology utilization. Tools need to be selected to meet needs, not to enhance the image of tool-builders. There is little room in this field for the kind of "technology-push" that has bedeviled other areas of technology application, particularly in manufacturing -- a drive to secure advanced technology simply because one believes that one will be outdated without it, rather than an intelligent procurement based on understanding of both technology advantages and program goals and needs. Applications that are tool-driven are inherently less effective than those that are use-driven; this is the consistent lesson of previous research.

This is not to say that the evolution of technology should not continue, or that developers should not do all they can to create applications and sell them to as many as they can. As in any other area of technological evolution, the market is critical. However, program planning -- from the level of the community agency to the level of the Federal government -- needs to start and finish with creative pedagogy, not technological determinism.

The major need is now for a degree of "consciousness-raising" on the part of system developers and users alike. To this end, efforts such as OTA's present study are necessary and worthy. But a sustaining and continuing involvement with the issues will be required; as we noted, the political agenda is mutable and full of potholes. The interaction of technology and literacy is too important to be left to any one focal point to nourish and protect. There is plenty of creativity out there, as we have described; the challenge now is to harness and empower it for the greater good.

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Appendix A

List of Contact Individuals

WATTS ADULT LEARNING CENTER (WALC)

Ms. Frances Buchanan
Coordinator
Watts Adult Learning Center
1625 East 112st
Los Angeles, CA 90059

(213) 564-2654

CREATIVE ACADEMIC ACHIEVEMENT PRO-SUCCESS (CAAP)
LEARNING CENTER

Ms. Aqueda Pena
620 S. Broadway
McAllen, Texas 78501

(512) 631-2227

CORRECTIONAL EDUCATIONAL DIVISION
LOS ANGELES COUNTY JAIL SYSTEM
HACIENDA-LA PUENTE UNIFIED SCHOOL DISTRICT

Ms. Ernestine Schnulle
Corrections Education Division
Hacienda-La Puente Adult Education
320 N. Willow
La Puente CA 91746

Mr. John Fleischman
Outreach and Technical Assistance Network
15377 E. Proctor Ave.
City of Industry, CA 91745

818-968-4638

BALTIMORE READS, INC.

Ms. Maggi Gaines
Executive Director
Baltimore Reads, Inc.
330 N. Charles St., Suite 500
Baltimore MD 21201

(301) 752-3595

CENTER FOR TRAINING AND ECONOMIC DEVELOPMENT

Mr. Ray Manak
Directory of Literacy Services
Adult Learning Center
Cuyahoga Community College
2900 Community College Avenue
Cleveland, Ohio 44115

(216-987-4047)

UAW-FORD NATIONAL EDUCATION, DEVELOPMENT AND TRAINING CENTER (NEDTC)

Mr. Jay Tucker
National Education, Development and Training Center
5101 Evergreen Rd.
P.O. Box 6002
Dearborn MI 48128

313-337-3464

Appendix B

Survey Guides

ADMINISTRATOR INTERVIEW GUIDE

I. Introductory Remarks

A. Exchange of names

B. We have been asked by the Office of Technology Assessment to conduct a study of the ways in which computers and communications technology are being used in Adult Literacy programs around the country. Our report will be presented to Congress to support their policy decisions about the use ofinformation technology in Adult Literacy Programs. We are interested both in what works well here so that other programs can learn from your experience and in what can be done better both here and elsewhere. We will be writing a report based on what you and others tell us (including administrators, program specialists, and clients), but in this report, we will not identify you by name. If we quote your words, we will take steps to make sure that you cannot be personally identified with the quotation unless you wish to be. Of course, we'd like as much in the way of good quotes as we can get! I will be asking the questions, and will be taking notes.

C. Do you have any questions that you want to ask us before we get started? It is OK for you to ask questions of us at any time.

II. Administrator Background

A. First, we'd like to know something about your background. Basically, what's the story about how you came to be here, doing what you're doing?

Probes:

Your role in this program
How did you come to be here? When was that?
Previous teaching
Academic background and prior experience
computer-related experience

B. Can you describe the history of the program and your role in it.

Probes:

introduction of information technology into the program
the initiators
balance between the educational program and the technology when the technology was implemented
program changes (structure, content, effectiveness) since technology has been used in it
initial champion, decision-making
first uses of IT
expansion implementation tactics
major turning points in program evolution

C. Can you describe for us what the program looks like now?

Probes:

name
target clients
purpose and educational philosophy
set (established) curriculum (which) or locally developed?
major content areas
number of students enrolled
client recruitment and retention
length of course (fixed, variable)
intensity (hours per week)

Are any other (Non-educational) Programs (e. g. , meals, childcare, transportation) involved?

Probes:

type
description

D. Will you please describe the clients of this program?

1. Who are they (demographically, or in any other significant way)?

Probes:

What do they need to learn?
How many of them are here voluntarily, and how many are required to be here (JTPA, court, etc.)

2. What particular needs do they have that this program is trying to address?

Probes:

life skills
occupational skills (job specific)
employability skills (punctuality, personal management, teamwork)

3. What particular needs do they have that are not being addressed by this program?

Probes:

basic needs, i. e. , nutrition, shelter
life skills
workplace skills

4. What needs do they have that prevent them from doing well in this program?

Probes:

nutrition
transportation
child care
physical handicaps
lack of EL fluency
other barriers to access, both physical and learning-oriented

5. What kinds of connections do you have to other social service agencies?

Probes:

methods of getting referrals
methods of giving referrals

6. To what extent does the program allow clients to pursue their own path through the programs offered?

7. To what extent do the instructors in this program have latitude to adapt the curriculum to students' needs? How many exercise this latitude?

E. What are your Future Plans for this program?

Probes:

expansion of clients, staff, locations
new programs
new funding sources
new technology
what would they do if resources dry up?

III. Information Technology Overview

A. Will you please tell us where and how computer and telecommunications technologies are used in this program?

Probes:

programs and courses using IT used
all programs and courses?
If not used in all: why not? Are there future plans to expand the use of IT to all courses and programs?
percentage of instructors using information technology in their instruction? If not all: why not? Future plans?
percentage of clients/students using IT in their programs here? If not all: why not? Future plans?

C. To what extent are the uses of information technology in this program the result of cooperative arrangements with other agencies, Programs, and vendors? Please describe. Are these cooperative arrangements adequate to meet the needs of your program?

D. How do you disseminate what your program is doing to other programs and interested parties?

E. What problems does the use of IT in the program create? Please describe. How do you cope with these? What assistance could you use in coping with these problems?

F. What are the future plans for expanding the use of information technology here? How were these arrived at? Are technology planning processes here adequate?

IV. Evaluation of the Technology Used in the Program

A. What, in your opinion, are the strengths and weaknesses of this Adult Literacy Program as a whole (all programs included)?

Probes:

new programs needed
more/different clients to be reached/retained
coordination with other agencies about clients
funding levels
teacher recruitment/retention
use of technology/need for additional technology or assistance with technology/coordination with other Programs and courseware developers
general administrative issues

B. Please assess the technology used in this program from the point of view of:

1. yourself and the other program administrators

2. clients and their families (probe especially for attracting and retaining clients. Ask if there is any hard evidence.)

3. employers of clients

4. instructors (especially recruitment and retention)

5. program funders (does it help or hurt in finding resources?)

6. other parties (e. g. , politicians)

C. What resources are needed to make the Program and the IT in it more effective?

Probes:

technological resources
economic resources
personnel resources
informational resources

D. What advice would you give other Adult Literacy Programs with respect to information technology?

E. What advice would you give to Congress with respect to the use of information technology in adult literacy programs?

F. Is there anything else we should have asked you?

TECHNICAL SPECIALIST INTERVIEW GUIDE

I. Introductory Remarks

A. Exchange of names

B. We have been asked by the Office of Technology Assessment to conduct a study of the ways in which computers and communications technology are being used in Adult Literacy programs around the country. Our report will be presented to Congress to support their policy decisions about the use of information technology in Adult Literacy Programs. We are interested both in what works well here so that other programs can learn from your experience and in what can be done better both here and elsewhere. We will be writing a report based on what you and others tell us (including administrators, program specialists, and clients), but in this report, we will not identify you by name. If we quote your words, we will take steps to make sure that you cannot be personally identified with the quotation unless you wish to be. Of course, we'd like as much in the way of good quotes as we can get!. I will be asking the questions, and will be taking notes.

C. Do you have any questions that you want to ask us before we get started? It is ok for you to ask questions of us at any time.

II. Specialist Background

A. First, we'd like to know something about your background. Basically, what's the story about how you came to be here, doing what you're doing?

Probes:

Your role in this program
How did you come to be here? When was that?
Previous teaching
Academic background and prior experience
computer-related experience
full time vs volunteer
what kind of hours you work -- regular, off-hours, etc.

B. Were you involved in setting up the technological environment used in this program or did you step into your role here after the technology was already set up?

C. To the extent that you're familiar with it, can you describe the history of the program and your role in it.

Probes:

introduction of information technology into the program
the initiators

balance between the educational program and the technology when the technology was implemented
program changes (structure, content, effectiveness) since technology has been used in it
initial champion, decision-making
first uses of IT
expansion implementation tactics
major turning points in program evolution

III. Technological Environment

A. Will you please describe the computer/telecommunications/video technology used in this program? We're interested in all technology used, whether or not it is owned and operated by the program. (Inquire whether owned and operated here or operated by someone else and used on service basis).

Probes:

PCs (how many, makes and models)
audio equipment
videotape
videodisc
larger computers (e. g. , minis, what runs on them?)
local area networks (what do they connect?)
telecommunications equipment and services (modems, controllers, PBXs, TV, audio)
ancillary equipment (test scanners)

B. How reliable is the hardware used in this program?

Probes:

kinds of breakdowns
causes
ways of resolving problems
service contracts
vendor support

C. Are there problems with compatibility and obsolescence? Please describe. How do you deal with these?

D. Please describe the software and courseware used in educational programs

Probes:

generic: wp, database (vendor, licensing arrangements)
special package: CCP (vendor, licensing arrangements)
custom courseware developed here or to order
details of development history (who involved?)
description of SW/CW itself
description of maintenance/enhancement status and arrangements

E. What kinds of materials/training exist for helping instructors and students learn to use the technology? (Ask to see them.) Who developed these? Who provides them? Improves them?

F. Please describe any management information systems in use here. We are particularly interested in client tracking/monitoring, whether it is done locally or by community agencies. (Ask about development history and frequency/nature of use.)

G. How was the HW/SW used in this program acquired? Sources of funds/products? Can you put a price on this Program's cumulative investment in IT? Can you put a value on it?

H. What are the future plans for technology here? How were these arrived at? Are technology planning processes here adequate?

IV. Cooperative Development and Information Sharing Arrangements?

A. How do you learn about new technical and courseware developments?

Probes:

vendor product literature
interactions with software publishers
user groups (which)
professional association meetings (probe for examples)
personal contacts with who perform your role in other agencies and programs (who, where)
Are these sources of information adequate?

B. From whom do you receive support and assistance for technical problems or courseware content? Is the support available to you adequate?

C. How and to whom do you disseminate information about what you are doing here? How widely known do you feel your innovations are?

V. Evaluation of the Technology Used in the Program

A. What, in your opinion, are the strengths and weaknesses of this Adult Literacy Program as a whole (all programs included)?

Probes:

new programs needed
more/different clients to be reached/retained
coordination with other agencies about clients

funding levels
teacher recruitment/retention
use of technology/need for additional technology or assistance with technology/coordination with other Programs and courseware developers
general administrative issues

B. Please assess the technology used in this program from the point of view of:

1. yourself and any other technical personnel

2. clients and their families

3. employers of clients

4. instructors (especially recruitment and retention)

5. program funders

6. other parties

C. What resources are needed to make the Program and the IT in it more effective?

Probes:

technological resources
economic resources
personnel resources
informational resources

D. What advice would you give other Adult Literacy Programs with respect to information technology?

E. What advice would you give to Congress with respect to the use of information technology in adult literacy programs?

F. Is there anything else we should have asked you?

TEACHER INTERVIEW GUIDE

I. Introductory Remarks

A. Exchange of names

B. We have been asked by the Office of Technology Assessment to conduct a study of the ways in which computers and communications technology are being used in Adult Literacy programs around the country. Our report will be presented to Congress to support their policy decisions about the use of information technology in Adult Literacy Programs. We are interested both in what works well here so that other programs can learn from your experience and in what can be done better both here and elsewhere. We will be writing a report based on what you and others tell us (including administrators, technical specialists, and clients), but in this report, we will not identify you by name. If we quote your words, we will take steps to make sure that you cannot be personally identified with the quotation unless you wish to be. Of course, we'd like as much in the way of good quotes as we can get!. I will be asking the questions, and will be taking notes.

C. Do you have any questions that you want to ask us before we get started? It is ok for you to ask questions of us at any time.

II. Teacher Background

A. First, we'd like to know something about your background.

Probes:

in which program do you teach?
What courses do you teach
full-time? If not, do you work on a paid or volunteer basis?
what other work do you do?
What brought you to this program?
How long have you been teaching here?
What kinds of academic background and prior teaching experience do you have in this subject matter?
What background or experience do you have in the area of adult literacy education?
What background or experience do you personally have in the area of computer use or other kinds of information technology

B. To the extent that you're familiar with it, can you describe the history of the program and your role in it.

Probes:

introduction of information technology into the program
the initiators

balance between the educational program and the technology when the technology was implemented
program changes (structure, content, effectiveness) since technology has been used in it
initial champion, decision-making
first uses of IT
expansion implementation tactics
major turning points in program evolution

III. The Program and Use of Technology In the Program

A. Will you please describe the clients of this program?

1. Who are they (demographically, or in any other significant way)? What do they need to learn?

2. What particular needs do they have that this program is trying to address?

Probes:

life skills
occupational skills (job specific)
employability skills (punctuality, personal management, teamwork)

3. What particular needs do they have that are not being addressed by this program?

Probes:

basic needs, i. e. , nutrition, shelter
life skills
workplace skills

4. What needs do they have that prevent them from doing well in this program?

Probes:

nutrition
transportation
child care
physical handicaps
lack of EL fluency
other

5. To what extent does the program allow clients to pursue their own path through the programs offered?

6. To what extent do the instructors in this program have latitude to adapt the curriculum to students' needs? How many exercise this latitude?

B. Please describe the curriculum and teaching methods to us.

Probes:

curriculum established or locally developed?
your role in its development.
is the program open-entry/open-exit or do clients enter a fixed time?
duration of the program fixed in length or adjusted to the individual?
If fixed, what is the duration/intensity?
If variable, what is the range/intensity?
Is instruction conducted one-on-one or in a group?
Is the program self-paced or group-paced?
Is the program individualized to the student or standard to all who enroll?
How is this done (e. g. , by means of assessments at the beginning of the program)?
Can the curriculum be changed for individuals who are having trouble? If so, how?
To what extent does instruction involve lecture? group discussion?
To what extent can the students select topics or exercises of interest to them?
Does the program of instruction have a particular philosophy (e. g. , phonics versus whole-word; mastery learning; competency- based; whole language; integrated oral and written language; eclectic)?
(If not a job-skills training program:) What is the relationship between this program and job-skills training (e. g. , precedes, integrated with)?
What materials, other than computer-related materials, are used in the program (e. g. , textbooks, workbooks, freestanding exercises)? Please describe.
Were any of these developed or customized here? Who was involved in the process of developing these materials (you? other teachers here? teachers in other similar programs?)
In what way, if at all, do family members of the Learner participate in the activities of the Program? How is this managed?

C. Your Implementation of the Curriculum

1. How do you define your role as an instructor in this program?

2. To what extent do instructors here have the freedom to depart from the basic curriculum?

Probes:

Do you depart from the curriculum?
If so, how and why?
Do you receive encouragement or support for your instructional innovations from Program administrators?

D. Use of computing and communication technology in the program of instruction

1. Where is the technology used? In the classroom? In a lab? In lieu of classroom (e. g. , televised)?

2. When is it used? Is it used as an integral part of instruction or something student does independently (e. g. , practice in a lab before or after class)? Do students have relatively free access to the technology or only at particular times?

3. What hardware is used?

Probes:

type
reliability
integration

4. What software/courseware is used?

5. (For locally developed cw:) Describe the content of the courseware. Are there any supplemental materials (e. g. , written instructions for exercises to be done with the computer)? How does the student work with the content of the CW? (trying to get at its pedagogical approach, i. e. , skills and drills). Do students always work independently with the CW or do they sometimes work together? To what extent can students select their own paths through the student? (vs. the instructor/system chooses a starting point based on tested skill level, etc. As appropriate, ask questions about CW pedagogy from the list provided in section B. above. Ask to see the CW in use! Ask for copies of accompanying materials, if any.)

6. (For telecommunications technology:) Do students have the ability to ask content/technical support questions while they are using the tech from home? If so, how? Does the technology facilitate interaction with teachers or other students, as well as courseware?

7. What is involved in teaching the students how to use the technology itself (i. e. , in preparation for their using the technology to learn course-related material)? Do you yourself conduct the technology orientation? If not, who does it? Are special materials required (computer use instruction sheets)? (Ask for copies.) Did you have a hand in developing them?

8. Do students ever have difficulties using the technology (e. g. , that can be separated from the difficulties of learning the materials presented via computers)? How are these problems handled? Can you answer all or most of their questions? To whom do you turn when there is a problem you cannot handle? Are these support services adequate?

9. How do students react to the technology?

Probes:

Does the technology help attract students to the program?
help retain them?

How do their family members react?
Do students think their use of the technology gives them an edge in the job market?
Are these views accurate?
How do you manage their reactions?

10. What do you think are the impacts of the technology on students (and their families, their workplaces), teachers, and the Program as a whole?

Probes:

goal achievement
effects on teachers
effects on funding

IV. Evaluations and Policy Recommendations

A. What, in your opinion, are the strengths and weaknesses of this Adult Literacy Program as a whole (all programs included)?

Probes:

new programs needed
more/different clients to be reached/retained
coordination with other agencies about clients
funding levels
teacher recruitment/retention
use of technology/need for additional technology or assistance with technology/coordination with other Programs and courseware developers
general administrative issues

B. Please assess the technology used in this program from the point of view of:

1. yourself and the other program administrators

2. clients and their families (probe especially for attracting and retaining clients. Ask if there is any hard evidence.)

3. employers of clients

4. instructors (especially recruitment and retention)

5. program funders

6. other parties

C. What resources are needed to make the Program and the IT in it more effective?

Probes:

technological and informational resources
economic resources
personnel resources

D. What advice would you give other Adult Literacy Programs with respect to information technology?

E. What advice would you give to Congress with respect to the use of information technology in adult literacy programs?

F. Is there anything else we should have asked you?

ADULT LEARNER INTERVIEW GUIDE

I. Introductory Remarks

A. Hello, I'm . . . , from . . . , and this is . . . . from . . . . We have been asked by the Office of Technology Assessment to conduct a study of the ways in which computers and communications technology are being used in programs such as this one. Our report will be given to Congress to help them making policy about funding and support for programs like this all over the country. We will be talking with program administrators, instructors, and other specialists, but we believe that it is extremely important for us to learn what you, the clients, think about these issues. We are interested in both the things you like about this program and the way computers are used in it and also the things you do not like. We will be writing a report based on what you tell us, but in this report, we will not identify you by name. If we quote you, we will make up a name, so that it will not be possible for people who read the report to know who said what, unless you wish to be. Of course, we'd like as much in the way of good quotes as we can get!. I will be asking the questions, and will be taking notes.

B. Do you have any questions that you want to ask before we get started? It is ok for you to ask questions of us or of other participants at any time.

II. Overall Reactions to Program

A. One of the things we'd like to know is how you came to be in this program?

Probes:

Why did you join in the first place?
How did you learn about this program?
Who told you about it?

B. What other kinds of programs, if any, have you been in before this one? How were they, compared to this one?

C. What happened on your first day in the program? Did you meet with someone who explained the program to you? Did you take a test? What were your first impressions of the program? Did it seem like the right program for you? How did you know?

D. What were you hoping to get out of this program when you joined?

Probes:

Initial goals and changes in goals
expectations about staying with it
When you finish with this program, what will you do next? (If the answer concerns employment, ask what kinds of jobs they hope to get.)
what difference is it making in your lives?

E. What things do you like most about the program?

F. What things about the program do you like least?

G. What does your family think about the program and what you're doing? Do you get a chance to share reading with your family (in particular, children?)

III. Reactions Toward the Technology

A. Did you know anything about computers before you joined this program? (Alt. , had you ever tried television instruction before?)

B. In what courses/for what subjects/tasks/activities are you using (technology)?

Probes:

frequency of use
timing
independent work
easy/hard to use
help

C. Would the course/program be as good without the computer as it is with it? Would the course/program be better without the computer?

Probes:

What does using the computer do for you?
Do you think the computer helps you learn course material better?
Do you think the computer helps you learn others things than course material better (e. g. , English, writing if used in a non-writing class)?
Could you have learned this material as well without the computer?

D. Do you think that other programs like this one around the country ought to use computers the way this program does? What should they do differently?

E. Is there anything else you'd like to tell us (and Congress) about programs like this or about the way programs such as this use computers and other technology?